



Snow lingering on the north facing slopes. It was really cold here, too. Colder than the other places we'd hiked that day.



A giant rock shelter near the end of our loop hike. The locals have altered it somewhat to make it more comfortable.

[Re: Bushwhacking in Big Ivy, NC](#)

by **dbhguru** » Mon Jan 07, 2013 2:11 pm

Robert, Wow! Great shots. It is a standout place. I spent some time in Big Ivy in the early 1990s when the management of the Pisgah National Forest was behaving badly with threatened wholesale logging of the area. During one visit, I measured some large hemlocks in Big Ivy up to 14.5 feet around.

Robert T. Leverett

[Re: Bushwhacking in Big Ivy, NC](#)

by **jamesrobertsmith** » Mon Jan 07, 2013

We saw many thousands of grand old, now dead hemlocks. In that weird thing that I've noticed with the hwa plague, we encountered a hemlock standing perfectly green and *almost* healthy amidst scores of other dead hemlocks. Only twenty or so feet tall, either someone had treated it (it was near a road), or it's just one more example of how arbitrary the pattern of infestation can sometimes be. Still living, while all the hemlocks around it are dead. I'll never get over this weird pattern.



[Re: Bushwhacking in Big Ivy, NC](#)

by [jamesrobertsmith](#) » Mon Jan 07, 2013

Bob Leverett wrote: Robert, do you know the elevation you were at when near the mystery tree? Do you have other images that show conifers in the area of that particular tree?

The spruce were abundant on the high ridges above us (5400 feet and higher). But there were little fingers of groves extending down the north facing slopes (one of which we were on when I took that photo). The elevation where I took the photo was about 4400 feet and the "spruce" trees there extended down the slope maybe another 100 vertical feet and then ended.



There were just enough of them to consider it a grove (maybe two dozen). The one in the photo was the nearest one and most obvious photo subject. I think you're right and I was just seeing a white pine with different features than what I'm accustomed to seeing. I didn't scramble down the slope to take a

close look at it. We just assumed them for spruce trees. (The curse of the amateur.)

James Robert Smith

[Re: Bushwhacking in Big Iv, NC](#)

by [Josh Kelly](#) » Tue Jan 08, 2013 10:36 am

Robert, Bob, Having done tons of hiking in that section of the Craggies, I think the mystery conifer is a spruce. The needles are badly shaded, blurring their texture, but the color and shape of the tree looks right to me. That heinous "grass road", AKA Laurel Gap road, has lots of spruce along it, curiously, a lot of it seems to have been released from competition by logging of the old-growth Northern Hardwoods that lined that road up until the 1950's and 60's.

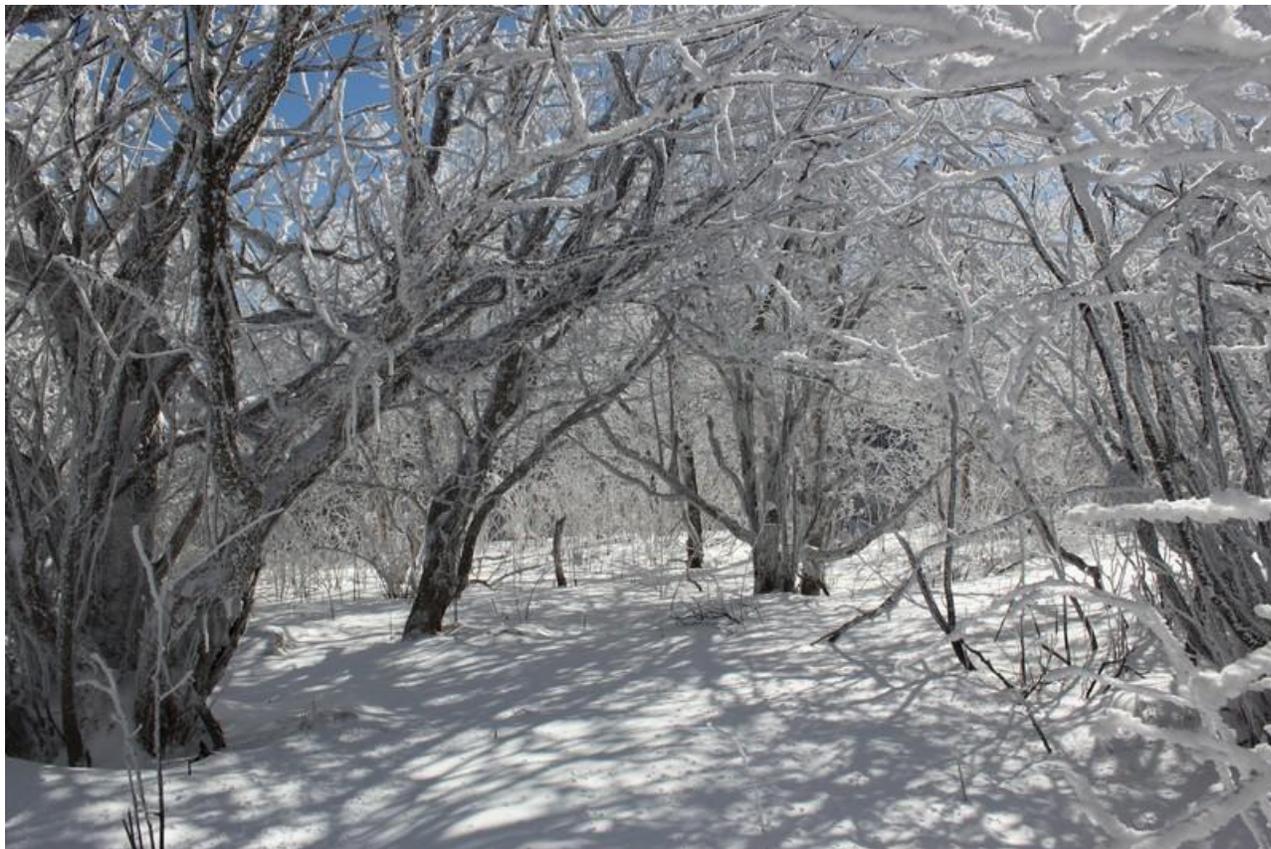
Robert, you really should be emailing me for directions anytime you head out this way. It sounds like you missed the extremely accessible Walker Cove Research Natural Area - 40 acres of very nice old-growth.

Josh

Re: Frozen Forest, NC

by jamesrobertsmith » Tue Jan 08, 2013

I saw one drift that was about six feet deep. I was sorely tempted to set up my camera on the tripod and take a photo of myself neck-deep in the snow.



The snow was deeper in Carvers Gap, in the forest where the winds had not scoured it out.

[Oregon Caves Douglas Fir, OR](#)

by **mdvaden** » Tue Jan 08, 2013 9:24 am

The photos I put in the CA section about the big Douglas firs in the redwoods, reminded me of this old Doug fir in Oregon.

It's basically where the Oregon Caves are, near Cave Junction, Oregon. Same road and parking, then a brief distance up a trail. The scenery is rather nice there. The caves are a decent tour too.

M. D. Vaden of Oregon



What is this? (Big Ivy Area, NC)

by jamesrobertsmith » Tue Jan 08, 2013

OK. We saw this leaf emerging from the forest loam at about 3800 feet on Walker Ridge in Big Ivy. What is it?



James Robert Smith

Re: What is this?

by Will Blozan » Tue Jan 08, 2013 2:44 pm

<http://plants.usda.gov/java/profile?symbol=APHY>

Aplectrum hyemale (Muhl. ex Willd.) Torr.
Adam and Eve



Britton, N.L., and A. Brown. 1913. *An illustrated flora of the northern United States, Canada and the British Possessions*. 3 vols. Charles Scribner's Sons, New York. Vol. 1: 574. Courtesy of [Kentucky Native Plant Society](#). Scanned by [Omnitek Inc.](#) [Usage Requirements](#).

Re: Loblolly Pines Noxubee National Wildlife Refuge, MS

by **Chris** » Tue Jan 08, 2013 2:39 am

I think you guys misunderstood. Red-cockaded Woodpeckers lived (previously) in open, old-growth pine savanna in the south. By thinning, I mean they are cutting down the various hardwoods that have grown up in the absence of fires and try to recreate some of the structure of those forest. That is what I was talking about.

However, when I started to search for the refuge's Comprehensive Conservation Plan (CCP) to determine what their rules for logging were, I found that the FWS had [a lawsuit filed against it](#) on January 5, 2012 for [logging on the refuge](#). However, it seems in December they reached [an agreement to stop logging for now](#) and have gotten a [new refuge manager](#).

I can't recall how many times in the past you have measured there and what you have found, but it would be useful to those in management to know what is there.... because they probably don't. FWS is constantly short of funds/budget. At the least, the [friends group for the refuge](#) would be useful to contact.

Re: Loblolly Pines Noxubee National Wildlife Refuge, MS

by **Larry Tucei** » Tue Jan 08, 2013 1:09 pm

Chris, The Noxubee Refuge Forest would have been mostly Hardwood with some Pine mixed. The Red-cockaded Woodpeckers preferred Long Leaf Pine for their habitat. Noxubee floodplain would not have contained much LL. The Noxubee area would have been in the LL northern most range and I think the Forest Service made many mistakes back in the

1930's with the wrong choice of Mgt. I guess the managers tried to create habitat for the woodpecker as best they could with Loblolly. It is a smoke screen like Bob would say to harvest timber. I think it is great that they have a new manager who is a Biologist. Wow I never would have thought that they would stop the harvest of timber and let the public get involved it's about time! Kudos to all involved on that

one!!!!http://www.auburn.edu/academic/forestry_wildlife/longleafalliance/teachers/teacherkit/woodpecker.htm

http://www.auburn.edu/academic/forestry_wildlife/longleafalliance/ecosystem/map/rangemap.htm

Larry Tucei

Welcome to Sam D. Hamilton Noxubee National Wildlife Refuge

<http://www.fws.gov/noxubee/>

Sam D. Hamilton Noxubee National Wildlife Refuge was formerly known as Noxubee National Wildlife Refuge but was recently renamed (February 2012) in honor of the Fish and Wildlife Service's former Director. Sam D. Hamilton Noxubee National Wildlife Refuge (NWR) is located in three counties (Noxubee, Oktibbeha, and Winston) and was created from lands obtained through the 1930s Resettlement Administration.

Our office and visitor center is located at the edge of Bluff Lake northwest of Brooksville, northeast of Louisville, and south of Starkville, Mississippi. The Refuge managers and staff are responsible for managing the 48,000-acre Sam D. Hamilton Noxubee National Wildlife Refuge, located in east-central Mississippi. The Refuge serves as a resting and feeding area for migratory birds and as an example of proper land stewardship. Also, the Refuge is extensively managed for the endangered [red-cockaded woodpecker](#).

Arizona riparian

by tsharp » Wed Jan 09, 2013 9:15 pm

NTS/WNTS:

Taking leave of the Flagstaff area I headed South on AZ 89A toward Sedona. This road is also known as the Oak Creek Canyon Road. As might be surmised it follows Oak Creek and until the outlying area of Sedona is reached it is within the Coconino National Forest. This 15 mile stretch of highway drops off the plateau at 6,500' down to 4,300' at Sedona with much of the elevation drop occurring with a series of switch backs in the first few miles. There are numerous opportunities to pull over and take short hikes. The Red Rocks/Secret Mountain Wilderness area is just west of the highway. I spent almost the whole day along this highway and another day on the way back to Flagstaff. I measured lots of trees and the biggest specimens of 13 species are listed below.

Bigtooth Maple (*Acer granddidentatum* var. *grandidentatum*) 2.7' x 55.6', 3.4' x 28.6'
Arizona Boxelder (*Acer negundo* var. *arizonicum*) 2.1' x 26.7'
Arizona Alder (*Alnus oblongifolia*) 4.5' x 67.7', 4.6' x 65.1'
Velvet Ash (*Fraxinus velutina*) 5.8' x 85.9', 8.2' x 75.4'
Arizona Walnut (*Juglans major*) 7.2' x 68.2'
Alligator Juniper (*Juniperus deppeana*) 5.2' x 20.2'
Rocky Mountain Juniper (*Juniperus scopulorum*) 4.4' x top out
Pinus Ponderosa (*Pinus ponderosa* var. *brachyptera*) 12.5' x 146.7'
Arizona Sycamore (*Platanus wrightii*) # x 119.9', 11.8' x 97.9'
Fremont Cottonwood (*Populus fremontii* ssp *fremontii*) 9.8' x 101.3'
Lombardy Poplar (*Populus nigra*) 7.2' x 90.9'
Rocky Mountain Douglas-fir (*Pseudotsuga menziesii* var. *glauca*) # x 143.2', 7.8' x 89.6'
Gambel Oak (*Quercus gambellii* var. *gambellii*) 7.3' x 92.3', 7.8' x 77.2'

For a complete list of trees measured see the link to the Trees Database below:

<http://alpha.treesdb.org/Browse/Sites/1437/Details>

All the trees measured were within 200 feet of Oak Creek or small side streams. I recorded at least nine species that had their best heights recorded along this section. They included the Ponderosa Pine pictured below. The one on the left had very few green needles and probably will be dead in a year or two.

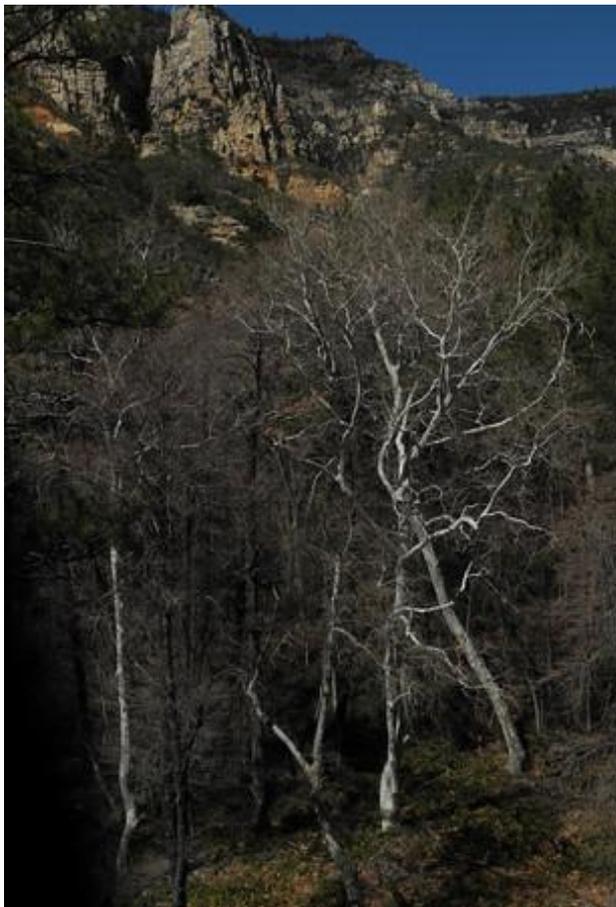


from left to right 9.5' x 145.5' (mostly brown needles), 8.2' x 110.0', 10.5' x 146.7'

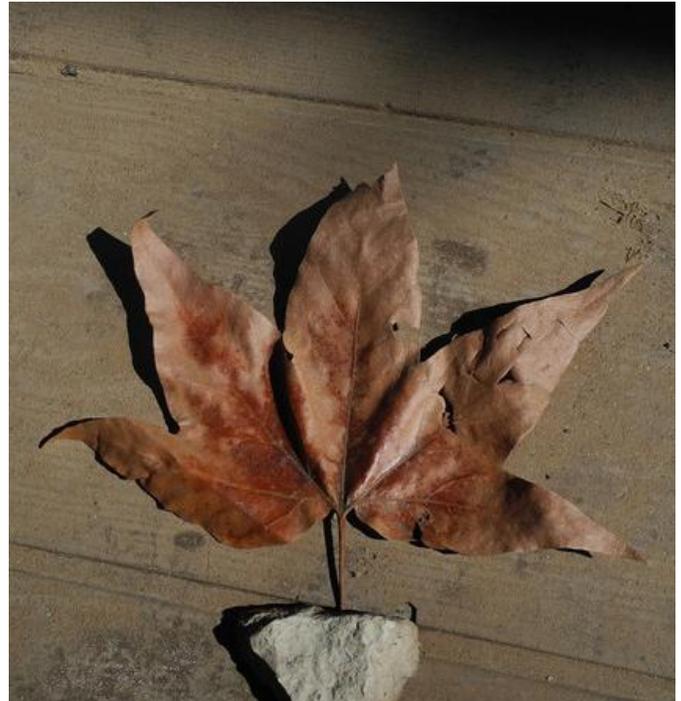
The tallest Rocky Mountain Douglas-fir (143.2') caused me a little trouble and cut one of my days short. I spied some nice looking trees up a small steep sided drainage. What I could not see from my starting point was there was plenty of snow and ice accumulated in the bottom. I slide down an icy snow bank to get a good vantage point to take height measurements and then continued along the creek bed to get circumference measurement. Unfortunately I broke through an ice covered pool to

about crotch level and lost interest in a circumference measurement. It was then two thoughts hit me about the same time. I really needed an ice pick to get back up the steep ice covered slopes and I also remembered promising my wife that I would not go off trail. Well I was not far off trail, the weather was not too bad (low 40's) but how to get up the icy slopes. I traveled about ¼ mile upstream and conveniently found a tree limb for an ice pick and made it out. That was a side trip that took almost two hours plus I settled for a visual estimate of 12' for the CBH of the Doug-fir.

The tallest Arizona Sycamore was along the Creek and is pictured below. The tallest tree is to the left of leaning one and behind a smaller multi-stem tree. The picture was shot from across the creek and at the edge of a cliff. The Gambel Oaks in this bottom would be between 100-110' but I could never get a laser shot I trusted.



Leaf of Arizona Sycamore (*Platanus wrightii*)



At first the Gambel Oak encountered made me wonder about the identification of this species. Every one measured up on the plateau was 30-40' tall with a gray bark. Down in the canyon I measured one to 92.3' with a dark almost black bark. However Gambel Oak is the only deciduous oak species in Arizona so my concern was unwarranted. I also spied a stand that would have broken a 100' but could not get to it.

I also encountered some Arizona Alder along and in some cases in the creek bed.

Four Lombardy Poplars were encountered. It appeared that a flood had wiped out a business as evidenced by some foundations, concrete pads, etc. This may not have been on National Forest Land.

The next day I visited Red Rock State Park. This small park is an educational unit only with no camping or recreational facilities. I measured some Arizona Cypress (probably planted) and some cottonwoods.

The largest ones are listed below:

Arizona Cypress (*Hesperocyparis arizonica*) # x 73.4'

Fremont Cottonwood (*Populus fremontii* spp fremontii) # X 70.6'

No CBH taken because the area was closed because of nesting activity by Black Hawks nearby. I was able to get heights from an access road nearby.

For a complete list of trees measured see Trees database at:

<http://alpha.treesdb.org/Browse/Sites/1440/Details>

I then camped at Dead Horse State Park which had a distant view of the former mining town of Jerome. The park itself is not large (320 acres) but it does connect with the Verde River Greenway State Natural Area which is a six mile trail along the Verde River. The bottom land was filled up with large cottonwoods and small desert Willows. I measured a number Cottonwoods in the park. The park also featured an Afgan Pine plantation. The park called it Quetta Pine which I assume is after the Pakistani City of the same name or possibly the seed source.

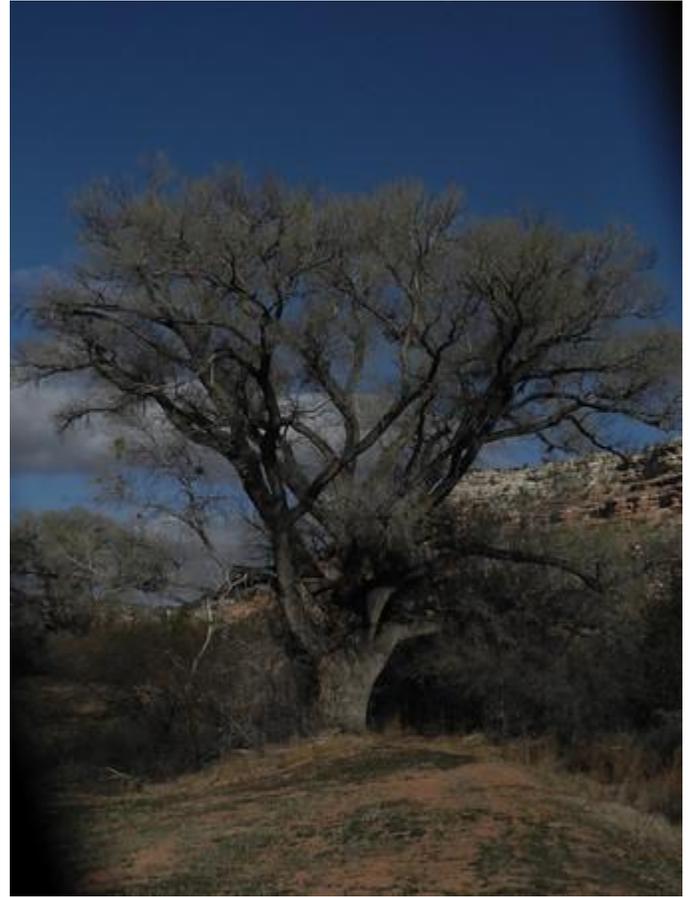
While on the a hike along the river bottom a large black colored bird flew to the ground and aggressively chased something for some distance through the undergrowth and was rewarded with a lizard. My first encounter with a Common Black Hawk (*Buteogallus anthracinus*)

This member of the Accipiteraceae family is found mostly in the coastal mangrove swamps of Central America where it primarily feeds on crabs. Apparently the ability to chase crabs through the mangrove thickets translates well for the inland populations chasing lizards through the thorny scrub.

The largest of each species encountered are listed below:

Desert Willow (*Chilopsis linearis*) 2.9' x 36.1'
Afgan Pine (*Pinus brutia* var. *eldarica*) 6.0' x 74.0'
Fremont Cottonwood (*Populus fremontii* spp fremontii) 15.3' X 77.3', 18.3' X 60.3', 26.6' (multi-stem) x 73.6'

Pictured below is a nice Fremont Cottonwood.



18.1' x 62.6' x 111.5' (max. crown spread)

For a complete list of trees measured see Trees database at:

<http://alpha.treesdb.org/Browse/Sites/1470/Details>

The next stop was at Montezuma's Well National Monument. This is a Unit of Montezuma Castle National Monument but is 11 miles away from the Castle. The "Well" is a large pond formed from a collapsed cavern and was heavily used by original inhabitants and some early irrigation ditches are still easily seen.



Amy Fulkerson - NPS interpretive ranger

For some more information on the history/geology of this feature see:

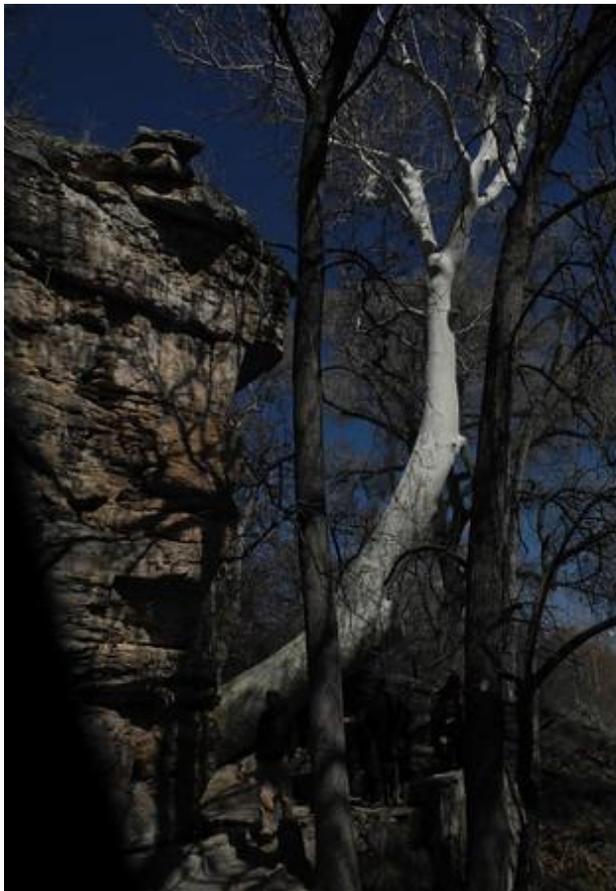
http://www.nps.gov/history/history/online_books/moca/montezuma_well/index.htm

http://www.nps.gov/history/history/online_books/moca/montezuma_well/index.htm

This link is for Ed, but beware it is a large pdf.

<http://pubs.usgs.gov/of/2011/1063/pdf/OF11-1063.pdf>

Above is a picture of a large Arizona Sycamore growing out of a rock crevice which also acts as a drain for the Well.. 12.2' x 81.6' with circumference taken at 10' along the bole after emerging from the rock crevice. and here is the rest of the tree:



I also measured a number of trees along Beaver Creek and more along the bottoms below the picnic

area. The largest are listed below:

Netleaf Hackberry (*Celtis laevigata* var. *reticulata*) 2.4' x 38.9'

Velvet Ash (*Fraxinus velutina*) 5.5' x 62.8', 5.6' x 58.3'

Oneseed Juniper (*Juniperus monosperma*) # x 18.1'

Rocky Mountain Juniper (*Juniperus scopulorum*) 3.3' x 38.4'

Fremont's Mahonia (*Fremont's mahonia*) # x 9.3'

Arizona Sycamore (*Platanus wrightii*) 12.2' x 81.6', 13.1' x 58.6'

Fremont Cottonwood (*Populus fremontii* spp *fremontii*) 11.7' x 76.0', 16.4' x 72.7'

Velvet Mesquite (*Prosopis velutina*) 1.2'

For a complete list of trees measured see Trees database at:

<http://alpha.treesdb.org/Browse/Sites/1309/Details>

I accidentally found this site while looking for a campsite. It was aptly named "Jewel of the Creek Preserve" and is owned by the Desert Foothills Land Trust. It is only 27 acre site in Maricopa County north of Phoenix near the towns of Cave Springs.

Supposedly it is one of the few the streams that has year round flow in Maricopa County. I contemplated the fact that in Southern West Virginia a stream this size is buried every week as a result of mountain top removal coal mining.

Largest of species measured are listed below:

Arizona Boxelder (*Acer negundo* var. *arizonicum*) 1.8' x 35.9', 2.7' x 33.6'

Saguaro (*Carnegiea gigantea*) 5.3' x 28.3'

Yellow paloverde (*Parkinsonia microphylla*) 2.1' x 16.7'

Fremont Cottonwood (*Populus fremontii* spp *fremontii*) 10.3' x 81.2', 10.8' x 57.9'

Goodding's Willow (*Salix Gooddingii*) 2.7' x 42.0'

The Goodding's Willow is very similar to Black Willow (*Salix nigra*) and I believe it was called that for a number of years.

For a complete list of trees measured see Trees database at:

<http://alpha.treesdb.org/Browse/Sites/1289/Details>

As you might surmise from the species listed, I am getting into Sonoran Desert vegetation and plan to see a lot more of it as I head toward the Tuscon area.

Turner Sharp

Re: Arizona riparian

by **Chris** » Thu Jan 10, 2013 1:49 am

Great stuff! It remind me to get off my butt and post some more SW stuff. I especially like your picture of the Sycamore from Montezuma Well. I was there a few years back and couldn't get a good picture of the thing.

As far as your dark barked Gambel's Oak goes, it does hydride with several other SW oaks, including Gray, Arizona White, and Shrub Live, although those all have gray, rather than black barks. Either way, nice big oak.

And Goodding's Willow is very closely related to Black and lots of old references (early-mid 1900s) just call it Black.

Re: Arizona riparian

by **tsharp** » Sat Jan 12, 2013 5:31 pm

Larry: Check out this link about diving in the "Well"
<http://www.nps.gov/moca/photosmultimedia/dive-to-the-bottom-of-the-well.htm>

[Nikon 440 calibration results](#)

by **pdbrandt** » Wed Jan 09, 2013 1:07 pm

Dear ENTS, I bought a lightly used Nikon ProStaff 440 rangefinder for \$100 on eBay and it finally arrived earlier this week. This morning I calibrated it in a level parking lot shooting toward a 1 foot CBH red maple. I measured the actual distance from the tree with a 100ft tape measure at click-over at 30 foot increments from 60-240 feet (20-80 yards). For each click over point I took 4 reads - 2 stepping back until click over to the desired reading, and 2 stepping forward until click over to the reading. My results are shown below along with my proposed correction factors - one for measurements less than 150 feet and one for measurements over 150 feet.

Nikon Prostaff 440 Rangefinder Calibration results							
Date	1/9/13						
conditions	50 degrees, sunny						
target	1 foot DBH maple at the end of a level parking lot						
Actual dist to target							
Distance @ click-over (ft)	Measure #1 (decimal feet)	Measure #2	Measure #3	Measure #4	average	error	st dev
60	58.50	58.50	59.00	59.00	58.75	-1.25	0.29
90	88.67	88.25	88.67	88.75	88.58	-1.42	0.23
120	117.58	118.58	118.67	118.08	118.23	-1.77	0.50
150	148.00	148.00	148.33	148.75	148.27	-1.73	0.36
180	177.50	178.08	178.00	178.25	177.96	-2.04	0.32
210	207.67	207.50	208.58	208.08	207.96	-2.04	0.48
240	237.25	236.92	238.25	238.67	237.77	-2.23	0.82
Conclusions							
I'll add 1.5 feet to rangefinder measurements below 50 yards (150 feet)							
I'll add 2.0 feet to rangefinder measurements above 50 yards (150 feet)							

Am I on the right track? Should I have more than 2 correction factors or would that be overkill given the instrument precision? Thanks,

Patrick Brandt

[Re: Nikon 440 calibration results](#)

by **dbhguru** » Wed Jan 09, 2013 1:58 pm

Patrick, I commend you on your thoroughness. However, I encourage you to repeat the calibration tests in low light levels. Also I would suggest testing against a highly reflective versus a dark target. I've found that I get slightly different results in high versus low light and high reflectivity versus low reflectivity. Prostaff 440s are individuals. I would

also encourage you to periodically rerun the calibration tests. Anyway, it is always encouraging to see my fellow and lady Ents take instrument calibration seriously.

Robert T. Leverett

[Re: Nikon 440 calibration results](#)

by **pitsandmounds** » Wed Jan 09, 2013 8:36 pm

Hi Patrick,

Thanks for starting up this post. It sounds like we're working through many of the same processes simultaneously. I'm still learning myself and I think sharing best practices around calibration is a great idea. As Bob suggests, I plan on fine tuning my calibration even further by using various targets in various light conditions.

On the topic of how many correction factors to use, I use a different correction for five specific distance ranges. The correction for my individual LRF gets proportionally larger as the distance increases. If I find that to be true when I calibrate again, then I'll plot it out on a graph and can pinpoint a correction value for any given distance.

When calibrating, I think that the numbers for a "step back" click-over point and a "step forward" click-over point should be kept separate and not averaged together. For instance, if you step back until your LRF clicks over to 150', then you know you are actually 148' away from the target (this would be subtracting 2' from the LRF reading, as opposed to adding it).

- Matt

[Re: Nikon 440 calibration results](#)

by **edfrank** » Wed Jan 09, 2013 11:53 pm

Matt and Patrick,

Yes the changeover points from going closer and backing away are different. One is at the lower end of the number shown and the other is at the upper end of the range where that number is displayed. You need to be consistent in measurement process while in the field as well. Always try to measure either moving forward to the changeover or backing away to the changeover point. Sometimes you just need to grab a measurement where you can find an opening.

A calibration chart where the errors are plotted versus distance would be worthwhile if it makes a nice plot. Effectively a linear plot is just a smoothed stairstep function of how you add the corrections to your data. The differences likely are not going to be very big. The only caution is that the increased resolution of the correction amount with distance from the linear plot might not represent any true increase in precision in the measurement itself. We don't know exactly how accurate the laser rangefinder is in reality. So beware of over estimating the accuracy of a single measurement. That is part of the problem with people doing tape and clinometer readings of tree heights. because they are using a higher tech instrument than the stick and tape measurement, they think their values are somehow better...

Edward Frank

[Re: Nikon 440 calibration results](#)

by **dbhguru** » Thu Jan 10, 2013 9:41 am

Patrick, Matt, Ed,

A most worthy discussion. Ed, you are correct. Some people often treat laser rangefinders as though they are accurate to the millimeter because an infrared laser is involved. Other users are

disappointed that the scales are to the nearest yard/meter or half-yard/meter, never realizing the importance of the point of changeover on the LED.

Calibration is absolutely necessary, but not under only one set of tightly controlled laboratory conditions. Target shape, reflectivity, orientation, and distance must be considered along with environmental conditions. Then calibration needs to be repeated at least annually.

In the case of LTI, the engineers gave us the rounding rule used to reflect the next highest value. Another consideration is the size of the beam at increasing distance. Michael Taylor has done a lot of testing on beam shape and size for the Impulse Laser. I'm going to do it on the TruPulse line. To do the job well, I need a more sophisticated setup than I have planned. Nonetheless, I'll report on the results I get from my crude experiment.

I'm anxiously awaiting LTI's release of the next version of the TruPulse 200, which is supposed to have the same accuracy as the Impulse 200LR. It is going to be an expensive instrument - around \$1,700. It will incorporate a missing line routine in the vertical plane, but won't have the digital compass for horizontal angles. Their TruPulse 360 will continue to be LTI's most advanced product at the price level. However, I still find the Nikon Prostaff 440 indispensable for measurements in a cluttered environment. Why Nikon had to take the functionality they had achieved in the 440 and screw it up in their 550 follow-on model, I'll never understand, but they did.

Robert T. Leverett

[HeLP: A paleoecological requiem for eastern hemlock](#)

by **edfrank** » Thu Jan 10, 2013 12:09 am

Lamont Tree Ring Lab

HeLP: A paleoecological requiem for eastern hemlock - co-authored by Neil Pederson and led by Amy Hessler:

How can you, tree ring and forest ecology communities, help save ancient information buried in this species?

<http://ppg.sagepub.com/content/early/20... 8.abstract>

Check here for an open access version of this paper soon: <http://academiccommons.columbia.edu/>

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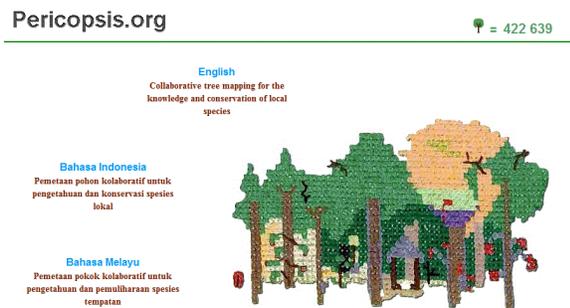
Table 1. Hemlock tree-ring sites listed in the ITRDB (International Tree Ring Data Bank) that could be updated, and new, previously unsampled, sites likely containing old-growth hemlock

Site	Latitude (°)	Longitude (°)	State/Province	Type
Bee Branch Gorge	34.33	-87.84	AL	New
Amicalola	35.57	-84.23	GA	New
Tight Hollow	37.00	-83.00	KY	New
Mammoth Cave National Park	37.00	-86.00	KY	New
Henry Wright Preserve	35.07	-83.24	NC	New
Bluff Mountain	36.39	-81.57	NC	New
Floodwood Drive	44.33	-74.38	NY	New
Green Lakes State Park	43.41	-75.97	NY	New
Letchworth State Park	42.66	-77.97	NY	New
Cook Forest State Park	41.00	-79.00	PA	New
Hearst's Content	42.00	-79.00	PA	New
Jenkins Woods	41.90	-76.47	PA	New
Smoky Mountains	35.68	-83.54	TN/NC	New
Skidmore Watershed	38.52	-79.18	VA	New
Cathedral State Park	39.00	-79.50	WV	New
Gauley River	NA	NA	WV	New
Panther Knob	38.50	-79.50	WV	New
WVU Forest	39.00	-79.70	WV	New
Brushy Canyon	34.29	-87.27	AL	New
Great Mtn Forest	41.98	-73.26	CT	New
Sage's Ravine	42.05	-73.43	CT	New
Beaver Creek Wilderness	36.88	-84.43	KY	New
Dunbar Brook	42.71	-72.95	MA	New
Gulder Pond	42.11	-73.44	MA	New
Roaring Brook	42.64	-72.23	MA	New
Loon Lake	46.12	-89.18	MI	Update
Presque Isle River	46.43	-89.58	MI	Update
Salt Point	46.28	-84.52	MI	Update
Dotson Knob	35.81	-81.99	NC	New
Kelsey Tract	35.05	-83.11	NC	Update
Mirror Lake	35.07	-83.21	NC	New
Gibb's Brook	44.13	-71.24	NH	Update
Bowater-Mersey	44.49	-64.00	NS	Update
Adirondack Mountain Reserve	44.08	-73.47	NY	Update
Pack Forest	43.33	-73.48	NY	Update
Roaring Brook Keene Valley	44.08	-73.45	NY	Update
Six Miles Creek	42.43	-76.48	NY	New
Spruce Glen	41.46	-74.11	NY	Update
Alan Seeger Natural Area	40.40	-77.42	PA	Update
Dingman's Falls State Park	41.13	-74.55	PA	Update
East Branch Swamp	41.20	-77.43	PA	Update
Hemlocks Natural Area	40.14	-77.39	PA	Update
Tionesta Natural Area	41.45	-78.58	PA	Update
Reviere du Moulin	46.38	-71.53	QU	Update
Savage Gulf	35.27	-85.34	TN	Update
Hemlock Cove - Sunset Field	37.30	-79.31	VA	Update
Limberlost	38.54	-78.35	VA	New
Rainseys Draft Recollection	38.20	-79.20	VA	Update
Bass Lake Peninsula	45.06	-88.53	WI	Update

[Collaborative tree mapping](#)

by **Jean Weber** » Sun Oct 16, 2011 8:38 am

I would like to present <http://pericopsis.org/> a free website for collaborative tree identification and tree mapping. It is possible to define an area (for example your garden or your street) using a polygon and to map the trees you have identified. Trees are identified by their scientific name and online queries permit to find on a map where species or varieties are growing. It is based on the principle of a Wiki: each contributor can edit the trees and the changes are recorded. A video tutorial is available on the Website.



The objective of the website is to give a visibility of the knowledge of tree taxonomy in urban and peri-urban areas in order to bring biodiversity in the focus of the public and decision makers. If we reach sufficient participants it could become a unique tool for a better management of biodiversity conservation where people are living. This could also demonstrate the need of ex-situ conservation of endangered lowland species when natural reserves are located in hill or mountain areas.

[Re: Collaborative tree mapping](#)

by **Larry Tucei** » Wed Jan 09, 2013 10:39 am

Jean, Ed, This is really a cool idea. I had in the past been putting together a listing location of the Live Oaks I've documented on Bing Maps. I think I have

about 50 trees located and needed to add the other 152. This site is much more detailed than what I was working with. I will take a closer look at the site. I'm happy to see someone doing something like this, it could be useful in many ways, Education, Historical and so on. I sent her an email.

Larry Tucei

[Re: Collaborative tree mapping](#)

by **Jean Weber** » Thu Jan 10, 2013 5:10 am

Thanks for your kind interest. If you would like to publish a large list of trees on pericopsis.org, send it to me and I will put it online. A web address and comment can be associated to each of your trees as well as a web address to your identification name. User that log in can download data on pericopsis.org (up to 200 000 trees) in form of a CSV (excel) KML (Google map) or SHP (Esri GIS Shape files). Do not hesitate to contact me for any question.

My plan for the future is to automate the generation of open-data from cities. Soon it will become possible to map the distribution of parent trees locations using a point or a polygon. The idea is giving visibility to small ex-situ conservation initiatives for individual trees or populations living in the "wild". This approach should be tested in some schools in Malaysia this year.

Jean Weber

[Re: Collaborative tree mapping](#)

by **edfrank** » Thu Jan 10, 2013 11:34 am

Jean, Thanks for the reply. I came across your original post a couple days ago and was surprised that you had not received any comments about your interesting project and website. I provided a link to your website on our Facebook page. We have about 2600 likes on our page and members include

individuals from many tree interest groups around the world. I would also encourage you to create a Facebook page for Pericopsis.org to increase your internet visibility and help people find your website.

Edward Frank

Re: Collaborative tree mapping

▣ by **Jean Weber** » Fri Jan 11, 2013 10:38 am

Thanks for the facebook link. I went on your page and I spend a whole nice afternoon on it!
I put the facebook page on the todo list for 2013.

For mapping trees there is a little learning curve and the “reward” is not as high as if you write a message on a website which tells something personal. It is how I explain the low reactions or participants.

In the US there is also a couple of tree mapping platforms for cities (<http://urbanforestmap.org/>) and I believe that the participants are also limited.

I will try to adapt the platform for coordinating ex-situ conservation. The idea is that tree conservation could be used as a motivation for students that can associate the knowledge they construct during their learning processes to a real science project (coordinating ex-situ conservation). In tropical countries many tree species are endangered and with the IUCN criteria it is quite easy to know them. In temperate countries we have an introgression of genes from horticultural clones varieties into “wild populations” this is much more tricky because it is often unseen.

Jean Weber

[My Wife's Land](#)

by **jamesrobertsmith** » Thu Jan 10, 2013

My wife owns a bit less than ten acres in Allaghany County here in North Carolina. We've long considered placing a small cabin there to enjoy the solitude. It sits at around 4,000 feet above sea level. The forest is good, almost all hardwoods, with some extensive rhododendron and natural rock gardens near the high ridge tops. For a long time we figured

we'd build on top, clear a few trees, and have a grand view of Mount Rogers across the vast valley between Peach Bottom Mountain (where her land is) and the heights of Massie Gap and Mount Rogers across the border.

But the more we go to look around the property, the more we like the idea of putting a cabin down below the ridge, in a cove with tall trees all around us, clearing few of them and just enjoying the forest.



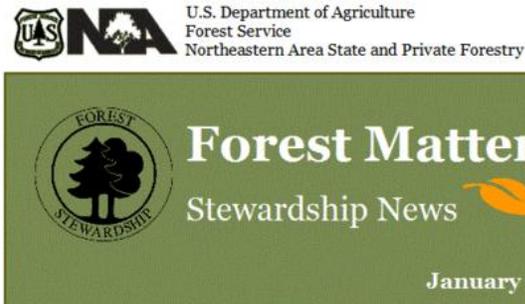






[Pollinators, Forest Management...](#)

by edfrank » Thu Jan 10, 2013 5:16 pm



Pollinators, Forest Management, and a New Range of Opportunities to Engage Landowners
By Russ Richardson, West Virginia Consultant Forester

Forest Matters Newsletter January 2013

<http://library.constantcontact.com/download/get/file/1104192170979-372/stew+news+pollinators+final+130107.pdf>

Since I started working as a forestry consultant in Massachusetts in 1975, I have always searched for innovative forest management ideas and opportunities that might stimulate my clients and keep them more connected with their woodlands. Early in my consulting career, one of the first things I recognized was that although timber harvesting was the primary focus and income source for most consulting foresters, the actual duration of time when timber harvesting is physically taking place on any given property was very small and often amounted to only a few weeks or months in the lifetime of an average woodland owner. I thought there might be some other income opportunities, but just hadn't thought about it that much.

But now that I've gotten a lot of experience over the last 37 years, I have been actively promoting a combination of forest management strategies for West Virginia woodland owners that include management of nontimber commodities such as native medicinal plants, leasing of hunting rights, and wildlife habitat development projects that help increase species diversity and enhance woodland recreational opportunities. In nearly all cases the

focus of management involves ownership activities that extend beyond commercial timber harvesting... continued

My final advice?

- Educate yourself about pollinators. Take advantage of any Web-based or live workshops to learn about pollinator food, habitat, and shelter. If there aren't any workshops, read the existing literature.
- Remember the five B's: birds, bats, beetles, butterflies, and bees.
- Educate your landowners.
- Prescribe pollinator-friendly practices in your Stewardship, Tree Farm, and forest management plans.
- Look for trees, shrubs, and plants that provide overlapping seasons of flowers.
- Recommend controlling invasive species and deer, and minimizing the use of pesticides.
- If needed, steer your landowners to NRCS or Farm Service Agency for assistance in developing a pollinator plan or to practices that enhance pollinator habitat.

Forest Matters Newsletter January 2013

Pollinators, Forest Management, and a New Range of Opportunities to Engage Landowners
By Russ Richardson, West Virginia Consultant Forester

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My interest in native pollinator habitat was initially stimulated by a West Virginia client I prepared a Stewardship plan for in the early 1990s. The landowner in that case was a retired teacher with a serious interest in butterflies. She received funding from a small grant that involved late winter and early spring burning of grass and brush on her property in an effort to encourage flowering native plants that would improve habitat for butterflies. As a result of watching the changes that took place on her property after just a couple seasons of fire treatment, my interest was piqued. By the late 1990s I was annually conducting late winter burns of permanent log landings and woodland openings scattered across my own property to provide habitat for butterflies and other pollinators.

Long before realizing pollinators were such a specific strand in the web of forest life, I was taking advantage of their efforts by annually selling seed from the woodland medicinal plant black cohosh (*Cimicifuga racemosa*) that I was managing. It wasn't until I learned about a species of butterfly called the Appalachian azure (*Celastrina neglecta*), which



In West Virginia, burning in January and February does not require an outside burning permit. In most years there are at least a couple of opportunities to conduct a controlled burn before March 1, which is the beginning of spring fire season.



Black cohosh flowers attract pollinators.

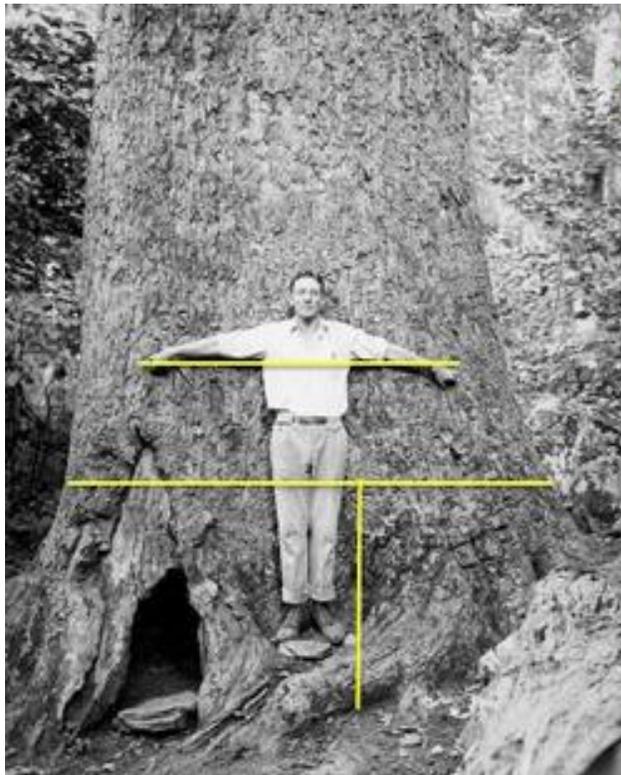
Re: Photo Measurements

by **dbhguru** » Wed Jan 09, 2013 10:22 am

NTS, below is another test of a simple photographic measurement process. The tree is the Reems Creek Poplar. I tried to identify a reasonable mid-slope position and locate a point 4.5 feet above on the trunk. I used 71 inches as the arm spread of the gent in the image. Why 71? Well, I'm pretty sure that the average arm span for men during the period when the photo was taken was between 68 and 74 inches. I went midway between. In addition, the reference object (stretched arms) lies in a vertical plane that is

closer to the camera than the vertical plane through the center of the tree. So the from the camera to the reference and target objects are different. I treated them as the same in the formula. In addition, I don't know where on the trunk the measurement of 28.7 feet was taken. I have no way of knowing if these sources of error complement or cancel. The fact that the photographic result comes within 0.5 feet of the taped result has to be pure luck. But we can still get into the ball park even when we don't know the values of the constituent variables.

Robert Leverett



Object	Type	Excel Size	Actual Size	Dist	Measured Size	Diff
Trunk	Target	3.43		1	107.75664	107.76
Person	Reference	2.26	71	1		

Girth = 28.211

$$T_m = \frac{R_a}{R_x} \frac{T_d}{R_d} T_x$$

R_a = actual diameter, reference object

R_x = Excel size, reference object

T_d = distance, target object

R_d = distance, reference object

T_x = Excel size, target object

[Re: Photo Measurements](#)

by **edfrank** » Thu Jan 10, 2013 12:33 pm

Bob, I have used similar techniques to estimate the diameter of trees in photos using the pixel counts in my graphics program (Thumbs Plus). These photos have square pixels so the vertical and horizontal pixel distances should be the same. I did not get quite the same numbers as you did for the marked lines, but perhaps this is simply a graphing error as the amount was small. Using your horizontal line as 71 inches.

There are 2.35 pixels for every inch. That would make the man 6 foot 6" tall, and the girth at the line 27.7 feet. If the man was shorter than 6' 6", then the diameter would be smaller.

The process using photo pixels is easy. Most graphics programs will give you a pixel count. If the measured distance is exactly horizontal or vertical the pixels can be directly read off the count indicator. In this case the horizontal line for arm spread was $233 - 66 = 167$ pixels = 2.35 pixels per inch assuming an arm spread of 71 inches. The girth was $282 - 32$ pixels = 250 pixels = diameter 106 inches = girth 27.7 feet. The mans height was 184 pixels or 6' 6".

If the measured distance is not directly horizontal then you can use the Pythagorean Theorem:

$\text{square root}[(\text{horizontal pixel difference})^2 + (\text{vertical pixel difference})^2] = \text{distance in pixels.}$

It is pretty straight forward to implement. I am not sure exactly how you made your measurements, but I don't see that this method would be any less accurate than any other method as the major potential errors are in guessing the size of objects used for scale, and choosing the endpoints of your measurement sections.

Edward Frank

[Re: Photo Measurements](#)

by **fooman** » Thu Jan 10, 2013 4:11 pm

All, I would highly recommend imagej as a digital image manipulation program to use for this sort of analysis. Free, widely supported and very capable.

Matt Smilie

<http://rsbweb.nih.gov/ij/>

[Re: Photo Measurements](#)

by **dbhguru** » Fri Jan 11, 2013 9:59 am

Will Blozan wrote: In my eastern time zone readjustmant stupor I did not see how you account for the diameter of the tree being 3+ feet behind the armspan.

Will, I didn't. That was why I listed the sources of error and made the statement "The fact that the photographic result comes within 0.5 feet of the taped result has to be pure luck." My primary reason for these posts is to bring the topic up onto our collective radar screen. If you have an item of know size in an image and you have the distance to that object and each object, the diameter of which you wish to measure using Excel, then you can get well within the ball park for circular objects doing simple photographic analysis.

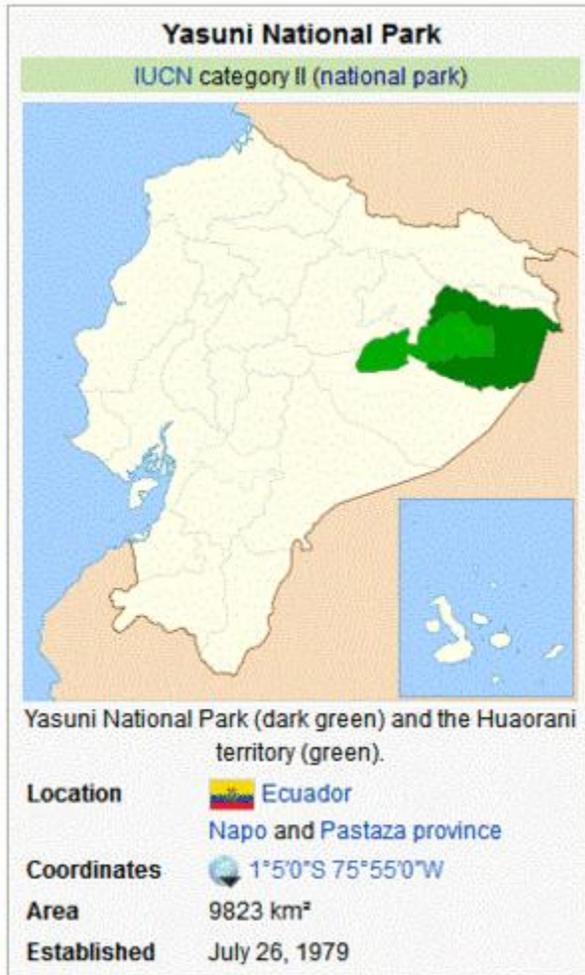
I have just downloaded ImageJ per Matt's suggestion. There's a lot to learn, but as he says, the product is free and I can see that it has a big support group. It is well worth exploring. There are going to be countless opportunities to use our cameras as an extension of our lasers and clinometers. The approach that I take is to try to find relatively simple extensions of what we do, be they with mathematics or with equipment as opposed to taking on the challenge of very complex software systems that include literally thousands of features when all we're looking for is a few simple measurements and a protocol that involves only a few steps.

Robert Leverett

[Yasuni National Park, Ecuador](#)

by Bart Bouricius » Fri Jan 11, 2013 4:38 pm

Yasuni National Park, Ecuador



http://en.wikipedia.org/wiki/Yasuni_National_Park

Rain Forest for Sale

Demand for oil is squeezing the life out of one of the world's wildest places.

By Scott Wallace

Photograph by Steve Winter

<http://ngm.nationalgeographic.com/2013/01/yasuni-national-park/wallace-text>

Development in Amazon

Posted by Guest Blogger on December 26, 2012

By Kelly Swing

<http://newswatch.nationalgeographic.com/2012/12/26/science-in-yasuni-sheds-light-on-impacts-of-oil-development-in-amazon/>

Science in Yasuni Sheds Light on Impacts of Oil

[New co-champion loblolly in Atlanta](#)

by [eliahd24](#) » Fri Jan 11, 2013 10:24 pm

Update- just yesterday I found a new co-champion loblolly at an old Civil War site (now city park) in Atlanta. It's a whopper. 10'6" cbh x 125' tall (not sure I even hit the top). 70+ foot spread too. Pretty stellar.



[Keep Kauri Standing](#)

by **edfrank** » Fri Jan 11, 2013 11:26 pm

Sean Freeman from Veteran Tree Group Australia (VTGA) sent a message to us via our Facebook Page. He reports that a cousin of his lives in Titirangi (Auckland West)

Melanie is very active in community groups and local politics and is the assistant to a local Labour MP Phil Twyford. She has managed to persuade the MP to undertake six days of walking along the 'Hilary Trail' in the Waitakere Ranges NP where the native Kauri forests are threatened by an exotic Phytophthora.

<http://www.kauridieback.co.nz/home/news-events/2013/1/11/tv3-news-highlights-potential-funding-issues.aspx>

During the walk which is intended to raise the profile of the government wind back of funding for tree protection and disease control amongst other media events Phil will be blogging, I would very much like for other relevant networks (like NTS) to carry his posts.

Here a couple of links to get everyone started:



<http://www.kauridieback.co.nz>

<http://www.3news.co.nz/Kauri-protection-funding-under-threat/tabid/1160/articleID/282631/Default.aspx>

Does Tane Mahuta need to keel over and die?

Posted by Phil Twyford on January 14th, 2013

<http://blog.labour.org.nz/>

<http://blog.labour.org.nz/2013/01/14/does-tane-mahuta-need-to-keel-over-and-die/>

What we don't know Posted by Phil Twyford on January 14th, 2013

<http://blog.labour.org.nz/2013/01/14/what-we-dont-know/>

Scrub, spray and walk away Posted by Phil Twyford on January 16th, 2013

<http://blog.labour.org.nz/2013/01/16/scrub-spray-and-walk-away/>

5 cool facts about kauri Posted by Phil Twyford on January 16th, 2013

<http://blog.labour.org.nz/2013/01/16/5-cool-facts-about-kauri/>

The future...if we don't act Posted by Phil Twyford on January 18th, 2013

<http://blog.labour.org.nz/2013/01/18/the-future-if-we-dont-act/>

It's a wrap Posted by Phil Twyford on January 19th, 2013 <http://blog.labour.org.nz/2013/01/19/its-a-wrap/>

Re: Explore: The Ancient Trees of Africa

by edfrank » Thu Jan 10, 2013 6:14 pm



This expedition is underway in southern Africa. I have been corresponding with several of the team members, David "Dak" Wiles in particular. This is their Facebook Page:

<http://www.facebook.com/ExploreTheAncientTreesOfAfrica?ref=ts&fref=ts> and their website: <http://exploretrees.com/> I have reposted some of



Leon Visser again high up in a yellowwood. 37m up... :) January 10, 2013

their photos on the NTS Facebook page.

David Dak Wiles arrived a few weeks ago and did the set-up work, the rest of the team arrived by the 5th of January.



Whilst measuring the 'biggest' fig in SA, we became aware of why it is locally called the wedding tree...



The team make the news in the Cape Argus, one of south Africa's leading newspapers!

allAfrica.com: South Africa: International Expedition to Climb South Africa's Champion Trees

<http://allafrica.com/stories/201301100351.html>

Clinometer Errors and Calibration

by **KoutaR** » Fri Jan 11, 2013 8:45 am

This thread was pulled from a different discussion on calibration of the Nikon 440 Laser Rangefinder viewtopic.php?f=235&t=4862 and contain references to that thread. - Edward Frank

But you cannot calibrate clinometer, and clinometer is a bigger error source. Correct me if I am wrong.

Kouta Räsänen

Re: Clinometer Errors and Calibration

by **Will Blozan** » Fri Jan 11, 2013 9:07 am

Kouta, You beat me to that comment! I agree, the rangefinder's +/- 1.5' distance range likely contributes less error than a mis-read or inaccurate clinometer, especially on higher angle measurements. Bob L has posted spreadsheets on this in the past.

Will Blozan

Re: Clinometer Errors and Calibration

by **edfrank** » Fri Jan 11, 2013 11:57 am

Kouta, Will, Bob, A clinometer is basically a mechanical device. Error in calibration is related to the balance of the internal dial/wheel. If it is off at the top angle by 1 degree, it will be off at the bottom by one degree. So how does this affect the total height reading if you measure the angle to the top and the angle to the bottom with the same clinometer? The following table shows the results if the distance to the top is fixed at 150 feet (for comparison purposes). The second assumption is that the angle to the base of the tree is close to zero.

If the top is at 150 feet at some angle, the base is closer. The error from the clinometer being off by 1 degree at the top, and at the bottom. If you are shooting close to horizontal at the base of the tree, the net errors in this calculation is from 0.01 to 0.03 feet because of a 1 degree calibration error in the clinometer. If the base of the tree is at some higher angle than horizontal, then less of the error is offset. In the values shown in red, I have split the angle to the top in half and calculated the vertical error if the base of the tree was at half the angle of the top of the tree. In the steepest at 66 degrees/33 degrees the error was 0.48 feet, and the net error decreased as the angle became less steep.

John Eichholz discussed the math involved here: http://www.nativetreesociety.org/measure/height/eichholz_error_spreadsheet.htm and includes an excel

	top angle	distance	height	horizontal	base height	net top-botom	mid angle	distance	height	top-mid
	66	150	137	63.39	1.11		33	63.39	41.17	
	65	150	135.9	63.39	0		32	63.39	39.61	
error			1.08		1.11	0.03			1.56	0.48
	46	150	107.9	106.7	1.86		23	106.1	45.02	
	45	150	106.1	106.7	0		22	106.1	42.86	
error			1.83		1.86	0.03			2.16	0.33
	26	150	65.75	135.95	2.37		13	136	31.39	
	25	150	63.39	135.95	0		12	136	28.9	
error			2.36		2.37	0.01			2.49	0.13

spreadsheet with formulas. He write: My conclusion: At a given baseline, the height error due to angle measurement error is nearly the same no matter what the angle.

You can easily test the calibration of a clinometer:

http://www.nativetreesociety.org/measure/suunto_clinometer_testing.htm

You can test the level accuracy of a clinometer or instrument. Sight from a marked height at some object- tree of pole at a distance. Have an assistant mark the point on the distant object the clinometer or instrument says is level. Move to that spot and sight back to your original position. If it is perfectly accurate the backsight will be right on the point you shot from originally. If it is reading high, then the angle it is off will be under-reading by $\arctan [1/2 (\text{error})/\text{distance}]$. If it is pointing lower than the starting point, then it is reading high, calculations are the same. In this way you can tell at least if the original level line is actually level or not.

Edward Frank

[Re: Clinometer Errors and Calibration](#)

by **pdbrandt** » Fri Jan 11, 2013 12:43 pm

This discussion is very helpful for me. It's good to know how much to trust (or not) my measurements and it is also good to know when to obsess about accuracy and when that is futile given the limitations of the instruments.

Is the following an accurate summary of sources of error in the sine method:?

If your LRF is not correctly calibrated you could easily add up to 2 feet of error depending on the angle of measurement.

Ed gives some numbers above to show the error that can occur if your clinometer dial is off, but human

measurement error is also an issue. It seems to me the clinometer can only be read accurately to within 0.25 degrees. This human error can lead to many inches of error. For example:

A 64 yard LRF measurement at 45 degrees or 45.25 degrees is a difference of 0.6 feet over the ~130 foot measured height.

A 50 yard LRF measurement at 64.5 degrees or 64.75 degrees is a difference of 0.3 feet over the ~130 foot measured height

Therefore being closer to the tree (larger angle) is better to decrease clinometer error, but on hardwoods, the closer to the tree you are the less likely that you will be to hit the top most sprig. This is of course assuming that the clinometer scale itself is 100% accurate and the only source of clinometer error is human error in reading the angle.

Not being able to step back to "click-over" in dense undercover adds error. For example, if you only have a tiny window through which to measure you may be stuck with the documented LRF error of 1.5 feet (for a Nikon 440), which, depending on the angle of measurement will add some fraction of that error.

Additionally, it may not be possible to step back to click over at both top and base LRF reading points. I believe it was Ed Frank who posted in another thread that it is better to step back to click-over on the top measurement if only one is possible since the crown LRF reading is usually longer. In fact, stepping back at both points in an effort to increase accuracy will actually introduce error if you are not on level ground.

Non-ideal atmospheric conditions such as high humidity or bright sunshine can, according to the Nikon instruction manual, introduce an unknown amount of error.

So, I think it is safe to conclude that even under ideal situations with a seasoned measurer, tree heights taken using the sine method with a Nikon 440 and Suunto clinometer are accurate to within 6 inches or so. That's still very impressive for a ground based measurement! In difficult measuring conditions LRF-derived heights could be off by a foot or two.

[Re: Clinometer Errors and Calibration](#)

by **dbhguru** » Fri Jan 11, 2013 2:02 pm

Patrick, the attached Excel spreadsheet gives a simple way of calculating the height error incurred from distance and angle errors when using the sine method. The spreadsheet automatically calculates the error from the variable values you enter. You can play what if games.

I've saved the spreadsheet under your name. If this approach works for you, there are plenty more spreadsheets that I can send your way. I've analyzed the sources of measurement error and their impacts from just about every angle you can imagine to include head or tripod swivel. The impact of different combinations of errors can be determined quickly through automating the calculations through spreadsheets. I've posted this stuff before, but I fear the math has been a turn-off. So, if the process described in the attachment isn't clear, I'll expand the explanation. Happy to.

In terms of your general understanding, you're doing well. So often in cluttered woods, the desirable measuring protocol cannot be followed. So we end up improvising with one of the measurements (top vs bottom) often being subject to much more error than the other. You've correctly grasped this reality, which is a big step forward. Also, most instruments have idiosyncrasies, and yes, atmospheric matter. And as you've indicated, beyond calibration considerations, there are human errors. If you would like to set range limits on the possible error, based on the assumptions you make, then the spreadsheet allows you to easily do that. Hope it helps.

Robert T; Leverett

[Re: Clinometer Errors and Calibration](#)

by **edfrank** » Fri Jan 11, 2013 2:40 pm

Patrick, Yes there is error in how you read the instrument. But the error values you are calculating are the maximum errors +/- if you are off by 0.25 degrees. Bob's spreadsheet will calculate this for you. Stepping back will negligibly increase the error from the clinometer reading as the angle will be barely perceptibly lower, but the error from the rangefinder will decrease because the height error is the sin of the angle x height. so as the angle decreases the effect of the length error decreases on the total height value.

It really doesn't matter if you move backward to a clickover point or forward to a clickover point, you must be consistent every time you do it, because stepping forward finds the minimum range at which that number is displayed, while stepping back finds the maximum position where that number is displayed. The difference is the stated precision of the instrument for example either 1.5 feet or 3 feet.

I say that in a mechanical clinometer that the error is the same at all angles because the instrument is a scale printed/etched on a weighted wheel. The wheel rotates about a pivot point with the heaviest side pointing down. The same point ALWAYS points down. When using the instrument, the vertical orientation of the balance scaled wheel is not being changed, you are essentially just rotating the case around the wheel. It moves back and forth during the movement process, but when it stops it is always the same side pointed down.

For electronic clinometer instruments essentially the same procedure outlined above can be used to check the accuracy of the clinometer. Instead of just a horizontal reading, a point can be selected at some angle and shot and back-shot. The vertical distance between the two readings is then measured. The difference in height perpendicular to the angle measured is $\sin(\text{shooting angle}) \times (\text{measured vertical distance})$ then as above this distance perpendicular to the measurement line can be used to calculate the error in the angle measurement = $\arctan [1/2 (\text{perpendicular error})/\text{distance}]$

Edward Frank

Re: Clinometer Errors and Calibration

by **pdbrandt** » Fri Jan 11, 2013 3:49 pm

Thanks for your explanations Bob and Ed. Your level of understanding is humbling...

edfrank wrote: I say that in a mechanical clinometer that the error is the same at all angles because the instrument is a scale printed/etched on a weighted wheel. The wheel rotates about a pivot point with the heaviest side pointing down. The same point ALWAYS points down. When using the instrument, the vertical orientation of the balance scaled wheel is not being changed, you are essentially just rotating the case around the wheel. It moves back and forth during the movement process, but when it stops it is always the same side pointed down.

Ed, it makes sense to me that the intrinsic error of the clinometer is the same at every angle, but the further you get from the tree, the more that error is magnified by the longer distance. Here's a screen shot from Bob's spreadsheet showing readings corresponding to an imaginary ENTser moving

toward a 70 foot tree, measuring the height as he gets closer to it.

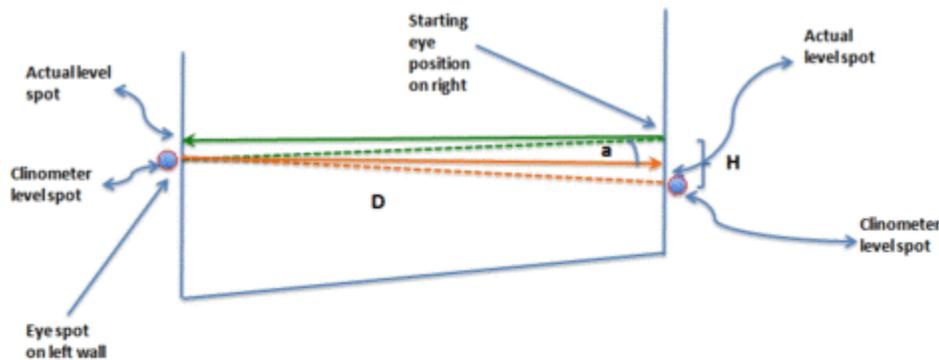
Patrick Brandt

Re: Clinometer Errors and Calibration

by **dbhguru** » Sat Jan 12, 2013 10:03 am

Patrick, I've attached an updated Excel workbook for you and others. The first spreadsheet is the one that was sent before. The second gives a method for determining the accuracy of a clinometer shooting to the top and base of a target. Determining level is not involved.

The third spreadsheet illustrates Ed's procedure for checking on whether a clinometer reads true on level. The process can be a little hard to visualize.



$$a = \tan^{-1} \left(\frac{H}{2D} \right) = \tan^{-1} \left(\frac{H}{2D} \right)$$

The solid green line is the level line from right to left
 The dashed green line shows where the clinometer places level on the left wall
 The orange lines show where the level spot and clinometer level is on the right wall
 The clinometer error is a

On the second spreadsheet, I've included data from an actual test conducted last evening on my TruPulse 200. As you can see, the error is slightly less than a tenth of a degree. I used a Bosch red laser to measure the distances from the TruPulse to the top and base of the target. I used a regular tape to measure the height of the target. The advantage of this type test is that it can be performed in your basement.

 [PatBrandtWS.xlsx](#)

Robert T. Leverett

[Re: Clinometer Errors and Calibration](#)

by **edfrank** » Sun Jan 13, 2013 10:24 am

pdbrandt wrote: It makes sense to me that the intrinsic error of the clinometer is the same at every angle, but the further you get from the tree, the more that error is magnified by the longer distance. Here's a screen shot from Bob's spreadsheet showing readings corresponding to an imaginary ENTser moving toward a 70 foot tree, measuring the height as he gets closer to it.

Yes Patrick, but the error from the clinometer isn't the only error in the equation. For illustrative purposes, if you assume an error of 1 foot in your distance measurements - you are underestimating the distance by that amount. The distance error is the hypotenuse of a right triangle. The the error from being short is:

height error = sin(angle) x distance error

(The horizontal error therefore is the cos(angle) x error distance.)

at 15 degrees = 0.25 feet
 at 30 degrees = 0.50 feet
 at 45 degrees = 0.71 feet
 at 60 degree = 0.87 feet
 at 75 degrees = 0.97 feet

So error resulting from distance measurements from increasing the angle increases as you approach the tree. Also as you get closer to the tree it is more difficult to pick out which top is higher as you are seeing it from a steeper angle. This is particularly true of broad topped trees. From a closer perspective you may not even be able to see the true top let alone be able to hit it with your laser. Not finding the actual top will result in a much bigger error than any generated by instrument errors or from the degree to which you can interpolate the clinometer readings.

One other note is that many laser rangefinders will swap scales at some distance going from readings nominally to within 1.5 feet to within one yard. The goal of the calibration of the rangefinder is to get better accuracies than what are displayed on the scale. Your reading with calibration at click-over points should be less than the 1 foot I used in the example.

It is always a trade-off between different types and sources of errors. I try to shoot at angles around 45 degrees or so if possible, but move closer or farther as needed to get the job done. I explore the structure of the tree shooting pretty straight upward from beside the trunk to see if I can find a higher point from underneath than I am finding from shooting from a distance away. If I do, then I have not identified the real top in my side measurement and need to do it again with more intensive searching from a different location. Good luck, practice make better.

Ed Frank

Re: Clinometer Errors and Calibration

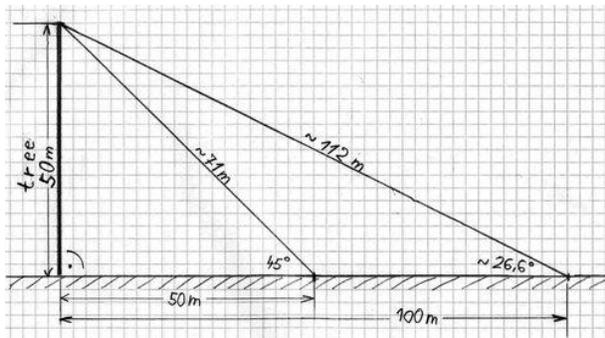
by **Karlheinz** » Mon Jan 21, 2013 9:36 am

I would like to come back to the origin of the discussion.

I made calculations of my own: What is the effect of +1° angular error on reading of height?

```
toward treetop:
Baseline 0 m: 0 m * (sin 46° - sin 45°)
Baseline 50 m: 71 m * (sin 46° - sin 45°)
Baseline 100 m: 112 m * (sin 27,6° - sin 26,6°)
Baseline 200 m: 206 m * (sin 15° - sin 14°)

toward base:
Baseline 0 m: 0 m * (sin 1° - sin 0°)
Baseline 50 m: 50 m * (sin 1° - sin 0°)
Baseline 100 m: 100 m * (sin 1° - sin 0°)
Baseline 200 m: 200 m * (sin 1° - sin 0°)
```



This calculation raises the following **hypothesis**:
condition is:

- vertical measuring body (tree) and given measuring position on horizontal baseline
- clinometer with angular error constant over the entire range (e.g. +1 °)

1) Height error is exactly constant, no matter what the angle

For example, measurement error in the case of height = baseline (45°) is constant at 1.75% of height (related to +1° error), no matter what angle to measuring point.

2) If determining the height as difference between two measurement points (sine-based), angle measurement error will be compensated completely

Please refute my hypothesis or render the mathematical proof!

I conclude:

Clinometer calibration is of no importance, if you take the two measuring points of the sine-based measurement by the same clinometer instrument.

With best regards

Karlheinz

Re: Clinometer Errors and Calibration

by **KoutaR** » Mon Jan 21, 2013 5:57 pm

Karlheinz,

Only a minor note: The height error is not **exactly** constant, though so small that other error sources greatly exceed it. If you add one decimal, for example, in the case of 50 m baseline the difference (and the height measuring error) is 0.873m - 0.865m = 0.008m = 8 mm. I would not have believed the error is so small without calculating it!

In the case of the baseline = 0 m, the angle to the top is not 45 degrees but 90 degrees, though it has no influence on the result.

Kouta Räsänen

[Re: Clinometer Errors and Calibration](#)

by **dbhguru** » Wed Jan 23, 2013 1:49 pm

NTS,

The interaction of angle and distance variables with the measuring method (tangent versus sine) can lead to results that are not always intuitive. Some general principles can be given, but then there are "behaviors" that don't seem intuitive, at least to me. I've attached an Excel workbook with two spreadsheets to hopefully shed some light on this area of NTS analysis. The first spreadsheet follows tangent errors based on a 100-foot baseline to both top and base over a fixed range of top to base angle of 60 degrees, i.e. top angle - base angle stays constant at 60 degrees. We impose a fixed angle error of +1 degree, i.e. we're over a degree at the top and at the base. We then follow the impact as we swing from +30 degrees top to -30 degrees base to +85 degrees top and +25 degrees bottom. As we see the height error is close to canceling out where the top angle is +30 degrees and the base angle is -30 degrees. Then the tangent method starts to fall apart.

By contrast, the sine method yield good results at all but the most extreme combinations and even then, it isn't bad. What is NOT obvious is that with the sine method, the largest errors occur at the lowest angles, not the highest ones, which is the case with the tangent method. So the implication is that you want steeper angles for the sine method. This implies that one wants to get closer to the target. Ideally, you are positioned well above the base of the tree, so that the unsigned values of the angles to top and bottom are closer to one another.

For most of the trees that we measure and for the

typical range of clinometer errors we can expect, calibration isn't a consideration. However, in actual field conditions, we often must mix the methods, e.g. sine top and tangent bottom. We may be able to see the base of a tree with our eye and thus get a clinometer reading, but not be able to shoot through the clutter with the laser. Since lean won't likely be much of an issue upon the trunk where we can get a laser shot, the preferred combination would be high angle to crown for the sine part of the calculation and low angle to the base for the tangent part of the calculation.

The interaction of angle, distance, and mixed methods along with errors creates a complex stew with unpredictable behaviors. In the second spreadsheet, we're looking at the impact on sine-based calculations of a fixed clinometer error and repositioning to a closer/or more distant vantage point on the same level base line. We're only looking here at shots to the crown. We position ourselves 100 feet horizontal distance from the target and compute the height error associated with a 1-degree clinometer error. Then we move to a more distant spot level with the first and shoot the target and compare the errors we get at both locations. We try another scenario. What we keep fixed in the new trial is the distance between the two measuring points. Notice that the difference between errors remains fixed for that particular difference between measuring locations. I've filled up the spreadsheet with trials that speak for themselves. More discussion of this type of analysis to come. It's put out there as food for thought at this point.

What should be apparent to all is that the very simple rules of the road accompanying most tree measuring guides don't offer a clue as to how all the variables interact.

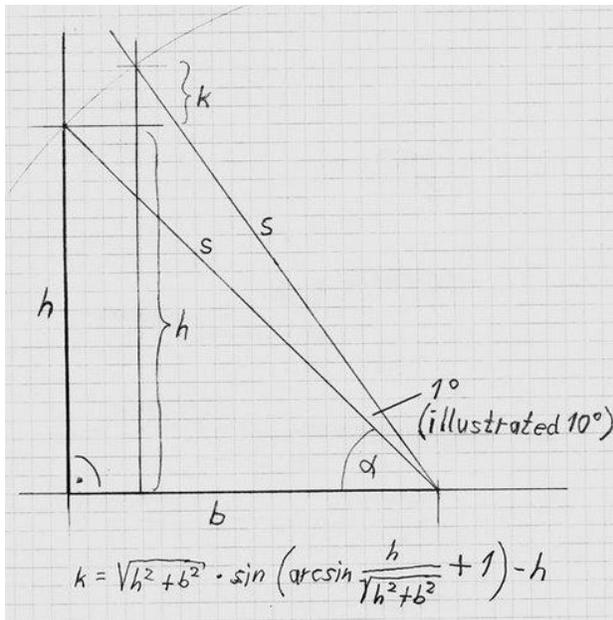
Robert T. Leverett

Re: Clinometer Errors and Calibration

by **Karlheinz** » Wed Jan 23, 2013 7:18 pm

Referring to my posting #11), after precise calculations, I realized that my hypothesis isn't perfectly accurate. I must admit, there are minor differences, as Ed, Bob, Kouta and others already have stated, however in this case in the range of 1 cm, absolutely negligible.

The sketch with corresponding formulas shows how I calculated the height error:



k is the height error in meters caused by a fixed angle error of +1 degree

There are three equations:

- 1) $s = \sqrt{h^2 + b^2}$
- 2) $h/s = \sin(\alpha)$
 $\alpha = \arcsin(h/s)$
- 3) $(h+k)/s = \sin(\alpha+1)$

Thereof derived:

$$k = s * (\sin(\alpha+1) - \sin(\alpha))$$

$$k = s * \sin(\arcsin(h/s)+1) - h$$

$$k = \sqrt{h^2 + b^2} * \sin(\arcsin(h/\sqrt{h^2 + b^2})+1) - h$$

Inserted a few of concrete numbers for constant baseline and different heights:

$$h = 0 \text{ m}, b = 50 \text{ m}$$

$$k = 0.87262 \text{ m}$$

$$h = 25 \text{ m}, b = 50 \text{ m}$$

$$k = 0.86881 \text{ m}$$

$$h = b = 50 \text{ m}$$

$$k = 0.86501 \text{ m}$$

$$h = 100 \text{ m}, b = 50 \text{ m}$$

$$k = 0.85739 \text{ m}$$

Greetings, Karlheinz

Re: Clinometer Errors and Calibration

by **dbhguru** » Wed Jan 23, 2013 8:08 pm

Karl, You've confirmed for yourself a key value of the sine method. I look forward to other interactions with you in exploring the impact of errors in both angle and distance for different methods of measurement. You may wish to read some of the past posts in Measurement and Dendromorphometry. A formula that I have posted in the past that invokes differential calculus gives the approximate error in height from any combination of angle, distances, and errors thereto. I'll revisit the topic on a future post. We are really happy to have you aboard.

Robert T. Leverett

Re: Clinometer Errors and Calibration

by dbhguru » Thu Jan 24, 2013 12:22 pm

Ed, Karl, et al., Please look at the third spreadsheet of the attached Excel workbook. Karl, this creates a simple format for trying different combinations of

height, base, and angle error. The data in the light green cells can be over-typed with new data. However, the spreadsheet was designed around heights of 0,50,75, and 100 meters against a common baseline and common angle error. That convention should be maintained. Of course, the spreadsheet reinforces what you've shown, Karl.

Robert Leverett

Analysis of impact of a 1-degree angle error for a difference between top and base angles of 60 degrees for tangent calculations									
Baseline	Angle	Tan Act Hgt	Angle + Error	Tan Comp Hgt with Error	Act vs Comp Diff	Actual Tot Hgt at 60 deg diff	Comp Tot Hgt at 60 deg diff	Total hgt error from 1 degree clinometer error	
Base	100	-30.00	-57.74	-29.00	-55.43	2.30			
Base	100	-25.00	-46.63	-24.00	-44.52	2.11			
Base	100	-20.00	-36.40	-19.00	-34.43	1.96			
Base	100	-15.00	-26.79	-14.00	-24.93	1.86			
Base	100	-10.00	-17.63	-9.00	-15.84	1.79			
Base	100	-5.00	-8.75	-4.00	-6.99	1.76			
Base	100	0.00	0.00	1.00	1.75	1.75			
Base	100	5.00	8.75	6.00	10.51	1.76			
Base	100	10.00	17.63	11.00	19.44	1.81			
Base	100	15.00	26.79	16.00	28.67	1.88			
Base	100	20.00	36.40	21.00	38.39	1.99			
Base	100	25.00	46.63	26.00	48.77	2.14			
Top	100	30.00	57.74	31.00	60.09	2.35	115.47	115.52	0.05
Top	100	35.00	70.02	36.00	72.65	2.63	116.65	117.18	0.53
Top	100	40.00	83.91	41.00	86.93	3.02	120.31	121.36	1.05
Top	100	45.00	100.00	46.00	103.55	3.55	126.79	128.49	1.69
Top	100	50.00	119.18	51.00	123.49	4.31	136.81	139.33	2.52
Top	100	55.00	142.81	56.00	148.26	5.44	151.56	155.25	3.69
Top	100	60.00	173.21	61.00	180.40	7.20	173.21	178.66	5.45
Top	100	65.00	214.45	66.00	224.60	10.15	205.70	214.09	8.39
Top	100	70.00	274.75	71.00	290.42	15.67	257.12	270.98	13.87
Top	100	75.00	373.21	76.00	401.08	27.87	346.41	372.40	25.99
Top	100	80.00	567.13	81.00	631.38	64.25	530.73	592.99	62.26
Top	100	85.00	#####	86.00	1430.07	287.06	1096.37	1381.29	284.92
Note: the difference between the top and bottom angles is maintained at 60 degrees. The clinometer is assumed to be in error by 1 degree high throughout the range.									
Analysis of impact of a 1-degree angle error for a difference between top and base angles of 55 degrees for sine calculations									
Hypotenuse	Angle	Sin Act Hgt	Angle + Error	Sin Comp Hgt with Error	Act vs Comp Diff	Actual Tot Hgt at 60 deg diff	Comp Tot Hgt at 60 deg diff	Total hgt error from 1 degree clinometer error	
Base	115.470054	-30.00	-57.74	-29.00	-55.98	1.75			
Base	115.470054	-25.00	-48.80	-24.00	-46.97	1.83			
Base	115.470054	-20.00	-39.49	-19.00	-37.59	1.90			
Base	115.470054	-15.00	-29.89	-14.00	-27.93	1.95			
Base	115.470054	-10.00	-20.05	-9.00	-18.06	1.99			
Base	115.470054	-5.00	-10.06	-4.00	-8.05	2.01			
Base	115.470054	0.00	0.00	1.00	2.02	2.02			
Base	115.470054	5.00	10.06	6.00	12.07	2.01			
Base	115.470054	10.00	20.05	11.00	22.03	1.98			
Base	115.470054	15.00	29.89	16.00	31.83	1.94			
Base	115.470054	20.00	39.49	21.00	41.38	1.89			
Base	115.470054	25.00	48.80	26.00	50.62	1.82			
Top	115.470054	30.00	57.74	31.00	59.47	1.74	115.47	115.45	0.02
Top	115.470054	35.00	66.23	36.00	67.87	1.64	115.03	114.84	0.19
Top	115.470054	40.00	74.22	41.00	75.76	1.53	113.72	113.35	0.37
Top	115.470054	45.00	81.65	46.00	83.06	1.41	111.54	111.00	0.54
Top	115.470054	50.00	88.46	51.00	89.74	1.28	108.51	107.80	0.71
Top	115.470054	55.00	94.59	56.00	95.73	1.14	104.65	103.78	0.87
Top	115.470054	60.00	100.00	61.00	100.99	0.99	100.00	98.98	1.02
Top	115.470054	65.00	104.65	66.00	105.49	0.84	94.59	93.42	1.17
Top	115.470054	70.00	108.51	71.00	109.18	0.67	88.46	87.15	1.31
Top	115.470054	75.00	111.54	76.00	112.04	0.50	81.65	80.21	1.44
Top	115.470054	80.00	113.72	81.00	114.05	0.33	74.22	72.67	1.56
Top	115.470054	85.00	115.03	86.00	115.19	0.16	66.23	64.57	1.66
Note: the difference between the top and bottom angles is maintained at 60 degrees. The clinometer is assumed to be in error by 1 degree high throughout the range.									

100.00	40.00	83.91	130.54	1.00	85.64	1.73	20.00	120.00	34.96	146.43	83.91	85.99147	2.0815	0.349
130.00	35.00	91.03	158.70	1.00	93.28	2.25	20.00	150.00	31.25	175.46	91.03	93.63098	2.604	0.349
130.00	35.00	91.03	158.70	1.00	93.28	2.25	35.00	165.00	28.88	188.44	91.03	93.89276	2.8658	0.6108
60.00	65.00	128.67	141.97	1.00	129.70	1.03	45.00	105.00	50.78	166.08	128.67	130.4833	1.8129	0.7854
150.00	35.00	105.03	183.12	1.00	107.63	2.60	25.00	175.00	30.97	204.10	105.03	108.0693	3.0382	0.4363
150.00	35.00	105.03	183.12	1.00	107.63	2.60	50.00	200.00	27.71	225.90	105.03	108.5056	3.4745	0.8726
200.00	20.00	72.79	212.84	1.00	76.27	3.48	50.00	250.00	16.23	260.38	72.79	77.14606	4.352	0.8726
200.00	20.00	72.79	212.84	1.00	76.27	3.48	75.00	275.00	14.83	284.47	72.79	77.58237	4.7883	1.3089
250.00	12.00	53.14	255.59	1.00	57.49	4.36	75.00	325.00	9.29	329.32	53.14	58.80308	5.6639	1.3089
300.00	15.00	80.38	310.58	1.00	85.61	5.22	75.00	375.00	12.10	383.52	80.38	86.91717	6.5324	1.3089
75.00	40.00	62.93	97.91	1.00	64.23	1.30	45.00	120.00	27.67	135.50	62.93	65.01718	2.0847	0.7854
75.00	40.00	62.93	97.91	1.00	64.23	1.30	75.00	175.00	29.74	201.56	100.00	103.0389	3.0389	1.3089
100.00	45.00	100.00	141.42	1.00	101.73	1.73	50.00	150.00	33.69	180.28	100.00	102.6026	2.6026	0.8726
100.00	45.00	100.00	141.42	1.00	101.73	1.73	25.00	125.00	38.66	160.08	100.00	102.1663	2.1663	0.4363
100.00	55.00	142.81	174.34	1.00	144.54	1.72	30.00	130.00	47.69	193.12	142.81	145.0619	2.2471	0.5236
200.00	29.00	110.86	228.67	1.00	114.34	3.47	30.00	230.00	25.73	255.32	110.86	114.859	3.9972	0.5236
225.00	19.00	77.47	237.96	1.00	81.39	3.91	30.00	255.00	16.90	266.51	77.47	81.91228	4.4386	0.5236
66.00	61.00	119.07	136.14	1.00	120.20	1.13	10.00	76.00	57.45	141.26	119.07	120.3754	1.3082	0.1745
66.00	38.00	51.56	83.76	1.00	52.71	1.14	10.00	76.00	34.16	91.84	51.56	52.88338	1.3185	0.1745
66.00	27.00	33.63	74.07	1.00	34.78	1.15	10.00	76.00	23.87	83.11	33.63	34.94994	1.3213	0.1745
95.00	27.00	48.40	106.62	1.00	50.06	1.65	10.00	105.00	24.75	115.62	48.40	50.23005	1.8251	0.1745
195.00	33.00	126.63	232.51	1.00	130.02	3.38	20.00	215.00	30.50	249.52	126.63	130.3675	3.733	0.349
230.00	26.00	112.18	255.90	1.00	116.18	4.00	15.00	245.00	24.60	269.46	112.18	116.4372	4.2588	0.2618
115.00	52.00	147.19	186.79	1.00	149.18	1.98	15.00	130.00	48.55	196.38	147.19	149.4397	2.2464	0.2618
160.00	34.00	107.92	192.99	1.00	110.70	2.78	35.00	195.00	28.96	222.87	107.92	111.3081	3.3868	0.6108
200.00	25.00	93.26	220.68	1.00	96.74	3.48	35.00	235.00	21.65	252.83	93.26	97.34864	4.0871	0.6108
50.00	65.00	107.23	118.31	1.00	108.08	0.86	20.00	70.00	56.86	128.05	107.23	108.4307	1.2053	0.349
100.00	39.00	80.98	128.68	1.00	82.71	1.73	20.00	120.00	34.01	144.77	80.98	83.06036	2.082	0.349
125.00	52.00	159.99	203.03	1.00	162.15	2.16	25.00	150.00	46.85	219.31	159.99	162.5862	2.5935	0.4363
200.00	41.00	173.86	265.00	1.00	177.32	3.46	25.00	225.00	37.69	284.34	173.86	177.7577	3.9003	0.4363

Notes:

1. This spreadsheet illustrates the behavior of clinometer errors on sine-based calculations above eye level.
2. The inputs are level baseline distance, true angle to target, angle error, and baseline extension.
3. Sine-based calculations are derived from these inputs.
4. You can over-write data in the green cells to run new tests. The data shows is for illustration purposes.
5. The spreadsheet computes the hgt measurement error from the first spot and then from the second spot (extended baseline) and compares the difference.
6. As can be seen, the effect of the baseline extension is the same for the same extension regardless of the original baseline and true angle, assuming the angle error is the same at both spots.
7. This spreadsheet does not investigate the cancellation of errors from top and base for same angle error. It is the first of several spreadsheets investigating the behavior of clinometer and distance error - in this case, only clinometer errors.
8. The sine calculations have been derived since this approach investigates behaviors from extending the baseline.

Meters height	Meters (b)	Meters (c)	degrees angle (a)	degrees angle error (e)	degrees a+e	Meters (He)	Meters Act - Error	Inches Diff	Inches Comp Diff	centimeters Comp Diff
0	25	25.000	0.000	1	1.000	0.436	0.436	17.178	0.000	0.000
50	25	55.902	63.435	1	64.435	50.429	0.429	16.878	0.300	0.762
75	25	79.057	71.565	1	72.565	75.425	0.425	16.728	0.450	1.142
100	25	103.078	75.964	1	76.964	100.421	0.421	16.578	0.600	1.523
0	50	50.000	0.000	1	1.000	0.873	0.873	34.355	0.000	0.000
50	50	70.711	45.000	1	46.000	50.865	0.865	34.055	0.300	0.762
75	50	90.139	56.310	1	57.310	75.861	0.861	33.905	0.450	1.142
100	50	111.803	63.435	1	64.435	100.857	0.857	33.756	0.600	1.523
0	75	75.000	0.000	1	1.000	1.309	1.309	51.533	0.000	0.000
50	75	90.139	33.690	1	34.690	51.301	1.301	51.233	0.300	0.762
75	75	106.066	45.000	1	46.000	76.298	1.298	51.083	0.450	1.142
100	75	125.000	53.130	1	54.130	101.294	1.294	50.933	0.600	1.523
0	100	100.000	0.000	1	1.000	1.745	1.745	68.710	0.000	0.000
50	100	111.803	26.565	1	27.565	51.738	1.738	68.410	0.300	0.762
75	100	125.000	36.870	1	37.870	76.734	1.734	68.261	0.450	1.142
100	100	141.421	45.000	1	46.000	101.730	1.730	68.111	0.600	1.523
0	120	120.000	0.000	1	1.000	2.094	2.094	82.452	0.000	0.000
112	120	164.146	43.025	1	44.025	114.077	2.077	81.781	0.672	1.706

Notes:

- Column A is the actual height of the target
- Column B is the baseline for the target
- Column C is the hypotenuse for the height and baseline
- Column D is the angle to the target for the height and baseline
- Column E is the assumed angle error
- Column F is the angle used by the measurer, which incorporates in
- Column G is the calculated height that includes the angle error
- Column H is the difference between the actual height and the calculated height
- Column I converts the height error from meters to inches
- Column J shows the difference in height errors using the actual height of 0 as a standard of comparison
- Column K converts the comparative differences into centimeters
- The largest difference in height errors of the same error in degrees is does for a reasonable range of heights and baselines remains less than two centimeters
- For long distances, an error of 1 degree generates very significant height errors.
- If Two height measurements are taken, one to the top and one to the base, then the errors, individually significant or not, will virtually cancel one another attributable to angle errors
- If the sine top - sine bottom method is not used, height errors will not necessarily cancel
- The light green cells are for user data entry to try different scenarios. All other cells are protected**

[The World's Oldest Living Olive Trees Are Lebanese](#)

by **edfrank** » Wed Jan 09, 2013 3:39 pm

The World's Oldest Living Olive Trees Are Lebanese

Linda Pappagallo | January 8th, 2013

<http://www.greenprophet.com/2013/01/noah-olive-trees-lebanon/> There are more photos on the “The

Sisters Olive Trees of Noah” Facebook page:

<http://www.facebook.com/SistersOlive>

Chris Morris wrote: Wed Jan 09, 2013 9:46 pm :

Besides the obviously baseless "6000 year old" description, pretty cool looking trees.

Joe Zorzin wrote: Thu Jan 10, 2013 7:15 am

I'm not surprised that olive trees can live a very long time, but I'm surprised that they haven't been cut down by one army or another- since armies often cut down the economically valuable trees of people who they were battling with.

Don Bertolette write Sat Jan 12, 2013 2:11 am:

Actually they do get cut down, yearly...it's common olive tree management to severely prune them back, forcing them to rebranch, effectively renewing the tree's energy reserves each year, and significantly increasing the quality and quantity of their output. This, from a third cousin in Spain who has an olive grove surrounding his residence, of some significant age. Most of the olive trees in Spain were planted by the Church in the 1500/1600s, after they'd cleared the original pine forests...



LEBANON. NORTH LEBANON. AL BATRUN District. BSHEALEH Sunday, April 29, 2012
<http://oli-olea.blogspot.co.uk/2012/04/lebanon-north-al-batrun-district.html> OLEA by Manel Armengol is

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[Re: New record European larch](#)

by **KoutaR** » Sun Jan 13, 2013 8:29 am

NTS,

A few days ago, Karlheinz returned to this larch forest and found still taller larches. **The new European larch height record is 53.8 m (=177 ft)**, 1.2 m taller than the tallest we found a few months ago. Karlheinz measured the distance to the top with Nikon Laser 550A S and the other measurements with Leica Disto D8, the both instruments attached to a tripod (he has built a tripod mount for Nikon himself), so the measurement should be accurate. The new record tree is growing very close to the former record tree. Find photos of the new record European larch here:

http://www.monumentaltrees.com/en/deu/hesse/vogelsbergkreis/4524_richthof/10650/

He also measured beeches and they were surprisingly tall - actually he found a new German record for beech! With this tree Karlheinz managed to get a distance measurement to the top with Disto in the evening, controlled with binoculars (Disto operates with visible red beam). He gives the height as 45.1 m (148 ft), only 55 cm lower than the current European beech record in Belgium. He thinks the point was probably not the highest twig and the tree could be even 45.5 m. A photo of the base of the beech:

http://www.monumentaltrees.com/en/deu/hesse/vogelsbergkreis/4524_richthof/10645/

Kouta Räsänen

[Max. height for northern whitecedar](#)

by **KoutaR** » Wed Jan 09, 2013 8:48 am

NTS, How tall is the tallest known northern whitecedar (*Thuja occidentalis*)?

Kouta Räsänen

[Re: Max. height for northern whitecedar](#)

by **tsharp** » Wed Jan 09, 2013 10:22 am

Kouta:

86 feet measured by Lee Frelick and Paul Jost in May of 2006. Measured in Porcupine State Forest in Michigan. Information taken from Jess Riddle's Maximum Dimension List. It has not been updated for awhile but I do not remember anyone posting anything taller.

In my home state of West Virginia our Maximum height is 68.2' measured by Allen Waldron, 3/19/2010. Located on a scree slope in Greenbrier County, private property. Since this tree is commonly planted in cemeteries I would not be surprised that some better heights might be found there.

Turner Sharp

[Re: Max. height for northern whitecedar](#)

by **bbeduhn** » Thu Jan 10, 2013 10:58 am

I've hit 87.0' at Biltmore Estate in NC, but there is likely a taller specimen there. The max age would be 115 years but it's likely a good bit younger. I got 75.5' and 79' in a relatively young stand at the WNC Arboretum (I'd guess less than 60 years).

Brian Beduhn

Re: Max. height for northern whitecedar

▣ by **KoutaR** » Fri Jan 11, 2013 9:51 am

The 113ft-tree Ryan mentioned is on the American Forests web-site:

http://www.americanforests.org/bigtree/..._entalis-4/

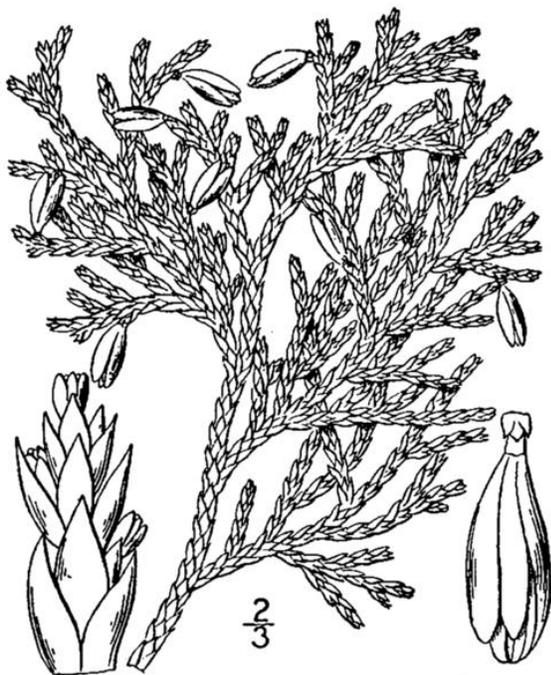
Of course, we don't know the method.

There is a laser-measured 35m = 115ft tall tree in Germany:

http://www.monumentaltrees.com/en/deu/b..._ach/10482/

In German documents the tree is said to be *T. occidentalis*. To me it does not look like *T. plicata* and the authorities are probably able to tell apart the two species. However, I have asked some dendrologists if they can identify the tree from the photos and two of them have suggested it could be the hybrid *T. occidentalis* x *plicata*. Any opinions?

Kouta Räsänen



Re: Max. height for northern whitecedar

▣ by **tsharp** » Fri Jan 11, 2013 12:32 pm

Kouta: Sure does not appear to be a *T. occidentalis*. When I see reddish bark I think of false-cypress. *Chamaecyparis obtusa*. I know on this side of the Atlantic it is commonly misidentified as being a Thuja. I have even found it tagged wrongly in an arboreteum.

TS

Re: Max. height for northern whitecedar

▣ by **Chris** » Sat Jan 12, 2013 2:57 am

Here is [link for the high resolution image](#)

My initial thought is the same as Turner's, its bark is much redder than the N. Whitecedar I recall.

Re: Max. height for northern whitecedar

▣ by **KoutaR** » Fri Jan 11, 2013 7:51 pm

Note that the photos on [monumentaltrees.com](http://www.monumentaltrees.com) have been saved with a high resolution. For the highest resolution, click a photo THREE times (slowly).

And here links for other high resolution images:

<http://www.monumentaltrees.com/db/15/full/15566.jpg>

<http://www.monumentaltrees.com/db/15/full/15567.jpg>

<http://www.monumentaltrees.com/db/15/full/15568.jpg>

<http://www.monumentaltrees.com/db/15/full/15569.jpg>

<http://www.monumentaltrees.com/db/15/full/15570.jpg>

You must click the photos still once to enlarge them.

Kouta Räsänen

[Re: Say Good Bye to the White Ash Tree](#)

by pitsandmounds » Sun Jan 13, 2013 9:36 pm

Here was the view from the trail at Caldwell Park (Ohio) this morning. Walking the trails, I looked skyward and saw the telltale branch pattern of the White Ash throughout the forest.

This 122-acre park, the property of the Cincinnati Parks Board, is an old-growth beech-maple segregate of the mixed mesophytic forest, according to [Old Growth in the East: A Survey](#).



- Matt

[Re: Say Good Bye to the White Ash Tree](#)

by pitsandmounds » Mon Jan 14, 2013 9:37 pm

Joe Zorzin wrote: Why did they leave those high stumps? They just left the logs on the ground?

I'm not sure what their plan is. I saw the same thing in California Woods, another Cincinnati park with old growth. I haven't seen anyone in the park to ask and emails have gone unanswered, but I'll keep digging. I suppose that if their goal is to minimize the highly unlikely possibility of a tree falling on a hiker, then this does the trick.

In various articles that I've read, it doesn't appear that any priority was given to these parks for treatment.

- Matt

[Re: Say Good Bye to the White Ash Tree \(WV\)](#)

by pitsandmounds » Tue Jan 15, 2013 10:13 pm

I received a reply from someone knowledgeable at the Cincinnati Park Board, in regards to my question about existing treatment plans. I've included the reply and my reply back to him . . .

Matt,

EAB has been present in California Woods for 4 - 5 years and has already killed most of the trees. Those that remain are more than 40% infested and are not good candidates for treatment.

Generally, trees larger than 30" diameter are not recommended for treatment anyway because it requires an enormous amount of chemical to reach all of the tree and the success rate is sporadic.

The Park Board is not funded to treat our 5,000 acres of ash trees. We received a 5 year grant that funds the treatment of about 100 trees in 3 parks (Ault, Mt Echo, and Mt Airy), the vast majority of park ash trees will be removed as they become hazardous.

I wish I had a better answer for you. Unfortunately EAB has caused similar destruction everywhere it is found.

I replied:

Thanks so much for the information, it's greatly appreciated.

While walking the trails, I may use the sine method with my laser rangefinder and clinometer to accurately measure some of their heights. I'm able to do that without a tape or having contact with the tree. For historical purposes, it may be nice to record some of the maximum heights in this area. In fact, if you ever need any help accurately measuring tree heights for any important trees in the parks, please let me know, it's something I enjoy doing.

- Matt

[Howdy from East TN](#)

by **EmoryRiver** » Sun Dec 30, 2012 4:21 pm

My name is Hugh and I grew up following my father around Tennessee timber tracts.

I enjoy keeping a list of species I have found on our timber tracts and measuring some of the big boys I stumble across.

I imagine this has been discussed previously but was wondering what the tallest tree in Tennessee or the East is? I think I've got a few White Pines that might be contenders.

Thanks for the info!

[Re: Howdy from East TN](#)

by **EmoryRiver** » Sun Dec 30, 2012 4:55 pm

I just use a Suunto handheld clinometer and could be off, but we have several pockets of white pines in a few drainages that I measured at 165-185. I have only measured a couple in one of these stands. I would love advice on more accurate measuring and would be happy to show anyone the trees to get better numbers if mine are off. Thanks for the info, these are relatively young pines under 100 years old.

The clinometer I use is based on a linear/flat line distance from the tree of 66 feet. For tall trees I measure out 132 ft (with tape) then double my dial reading for results. I understand there is room for error and 10 feet of error would be very easy to have.

I know they are tall trees, I just don't know exact heights, and still seem to be growing well especially bottomland groves.

I am confident on a few 160-170' trees around and I am curious about a couple that seem a bit higher 180+-

I am happy to show anyone the trees and would love any advice on more accurate measurements. Thanks

[Sugar Maple and Hickory Sp. Spared, TN](#)

by **EmoryRiver** » Sun Jan 13, 2013 11:21 pm

I just ran across a couple of these guys that were around 50 inch in diameter. They were not cut because they are hollow when this tract was first cut 1920's, one is sound but sits on a old property line which must have saved it. Not open grown but timber trees. (so low spread)

Are they worth measuring? Also got a Mockernut Hickory that was national champion in the past I have since lost!

Sorry no photos, I didn't even have a diameter tape with me. I hope to hike back up to them to better measure when the rain stops and the creek drops! I will keep you posted on better measurements once I get them but it is quite a hike so it might be a bit before I have time to run up that mountain just to measure a couple trees.

Hugh Faust

[Re: Potential National Champion Mountain camellia, TN](#)

by **EmoryRiver** » Mon Jan 14, 2013 8:42 pm

I just went up to check on a mt. camellia at my place (cumberland mountains Tenn) that has those dimensions but a little taller (30 ft) but it has leaned/fallen down. It is still very much alive but only 15-20 feet tall and leaning at a 45 degree angle and propped up by sticks in a rhododendron thicket. It is one of only two I have ever found on my place, a beautiful tree when blooming. Great find Will!

Hugh Faust

Mississippi Tall Tree Listing

by **Larry Tucei** » Mon Jan 14, 2013 5:09 pm

NTS, Hi all. I recently put together a list of the tallest trees from Ms. that I have measured with NTS standards. The listing contains the tallest of each

species at different locations. Bob I have been meaning to get this for the past couple of years. I also in the near future will put more listings together from Ala, Fla., La., and Wisconsin. Larry

 [Mississippi Tree Listing.xlsx](#)

2	Species	Common Name	Site Name	Sub Site	Section	County	Date	Height	CBH	Spread
3	<i>Pinus taeda</i>	Loblolly Pine	Noxubee NWR	Noxubee River		Noxubee	Dec-10	138'	9'	45' x 33'
4	<i>Quercus shumardii</i>	Shumard Red Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	135'	11' 3"	
5	<i>Quercus nuttallii</i>	Nuttall Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	135'	10' 3"	
6	<i>Quercus nuttallii</i>	Nuttall Oak	Noxubee NWR	Noxubee River		Winston	Dec-10	132'	13'	90' x 96'
7	<i>Liquidambar styraciflua</i>	Sweet Gum	Noxubee NWR	Bluff Lake West		Winston	Dec-10	132'	10'	60' x 35'
8	<i>Liriodendron tulipifera</i>	Tulip Poplar	Noxubee NWR	Noxubee River		Noxubee	Dec-10	132'	10' 10"	45' x 36'
9	<i>Quercus phellos</i>	Willow Oak	Noxubee NWR	Bluff Lake West		Winston	Dec-10	129'	14'	78' x 90'
10	<i>Taxodium distichum</i>	Bald Cypress	Noxubee NWR	Bluff Lake West		Winston	Dec-10	129'	8' 2"	30' x 27'
11	<i>Quercus alba</i>	White Oak	Noxubee NWR	Bluff Lake West		Winston	Dec-10	129'	8' 7"	60' x 60'
12	<i>Liriodendron tulipifera</i>	Tulip Poplar	Tombigbee NF	Mill Creek		Winston	Jan-11	129'	10' 5"	75' x 55'
13	<i>Pinus taeda</i>	Loblolly Pine	Noxubee NWR	Yellow Creek		Winston	Dec-12	129'	10' 10"	
14	<i>Pinus elliottii</i>	Slash Pine	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	127'	10' 1"	
15	<i>Pinus taeda</i>	Loblolly Pine	Bienville NF	Bienville Scenic Pines		Newton	Dec-06	126'	8' 6"	
16	<i>Pinus glabra</i>	Spruce Pine	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	126'	9' 3"	
17	<i>Pinus taeda</i>	Loblolly Pine	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	125'	8' 7"	
18	<i>Quercus phellos</i>	Willow Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	125'	9' 4"	
19	<i>Quercus pagoda</i>	Cherry Bark Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	123'	9' 7"	
20	<i>Carya aquatica</i>	Water Hickory	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	120'	7' 10"	
21	<i>Quercus phellos</i>	Willow Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	123'	12' 3"	
22	<i>Quercus michauxii</i>	Swamp Chestnut Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	121'	11'	
23	<i>Quercus alba</i>	White Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	121'	10' 4"	
24	<i>Quercus lyrata</i>	Overcup Oak	Noxubee NWR	Noxubee River		Noxubee	Dec-11	120'	12'	90' x 76'
25	<i>Quercus rubra</i>	Northern Red Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	120'	11'	
26	<i>Carya tomentosa</i>	Mockernut Hickory	Noxubee NWR	Bluff Lake West		Winston	Dec-10	120'	8' 2"	63' x 60'
27	<i>Plantanus occidentalis</i>	Sycamore	Noxubee NWR	Noxubee River		Winston	Dec-10	120'	11'	84' x 75'
28	<i>Carya tomentosa</i>	Mockernut Hickory	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	120'	10'	
29	<i>Quercus nigra</i>	Water Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	120'	9' 6"	
30	<i>Quercus pagoda</i>	Cherry Bark Oak	Noxubee NWR	Oktoc Creek	29	Noxubee	Jan-11	120'	12' 2"	
31	<i>Carya laciniosa</i>	Shellbark Hickory	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	115'	5' 6"	
32	<i>Magnolia grandiflora</i>	Southern Magnolia	Desoto NF	Salem Church Road		Green		115'	17' 7"	
33	<i>Quercus michauxii</i>	Swamp Chestnut Oak	Noxubee NWR	Bluff Lake West		Winston	Dec-10	114'	8' 6"	66' x 54'
34	<i>Quercus velutina</i>	Black Oak	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	110'	9' 6"	
35	<i>Carya caroliniae-septentrionalis</i>	Southern Shagbark Hickory	Tallahala WMA	Cedar Creek	29	Jasper	Dec-11	111'	7' 4"	
36	<i>Carya ovata</i>	Shagbark Hickory	Noxubee NWR	Oktoc Creek		Winston	Jan-11	105'	8'	
37	<i>Diospyros virginiana</i>	Common Persimmon	Noxubee NWR	Oktoc Creek		Noxubee	Jan-11	90'	4' 2"	
38	<i>Quercus virginiana</i>	Live Oak	Private	Ocean Springs		Jackson		76.5'	23' 1"	130' x 125'
39	<i>Betula nigra</i>	River Birch	Noxubee NWR	Mill Creek	32	Winston	Dec-10	75'	9'	30' x 30'
40	<i>Pinus palustris</i>	Long Leaf Pine	Private	Gautier		Jackson		66'		
41	<i>Ilex opaca</i>	American Holly	Noxubee NWR	Oktoc Creek		Noxubee	Jan-11	66'	3' 8"	
42	<i>Quercus hemisphaerica</i>	Darlington Oak	Private	Gulfport		Harrison	Jan-10	62'	8' 5"	
43	<i>Zanthoxylum clava-herculis</i>	Hercules Club	Tallahala WMA	Cedar Creek	29	Jasper	Dec-06	60'	2' 8"	
44	<i>Cedras deodar</i>	Deodar Cedar	Columbus	MSUW Campus		Lowndes	Dec-12	51'	14'	66'
45	<i>Carpinus caroliniana</i>	American Hornbeam	Noxubee NWR	Oktoc Creek		Noxubee	Jan-11	45'	3' 4"	

[UNC Campus Trees](#)

by **pdbrandt** » Mon Jan 14, 2013 6:34 pm

ENTS,

After calibrating my spiffy new Nikon 440 laser rangefinder I went out for a walk on the Chapel Hill campus of the University of North Carolina to measure some of my favorite trees. UNC is the oldest public university in the nation and many

campus trees are hundreds of years old. A couple of years ago I created a virtual tree tour of UNC campus trees, and, when I have time, I love to walk the "long way" to my office via some of my favorite trees.

(You can take the tree tour here:

<http://ncbg.unc.edu/trees-of-the-unc-campus/>)

Not surprisingly, the campus trees have huge crowns but tend to be rather short. Here are a couple of pictures of one of the quads.





One of my favorite trees is a 14 foot, 11 inch CBH post oak. I measured it today at 86.9 feet.

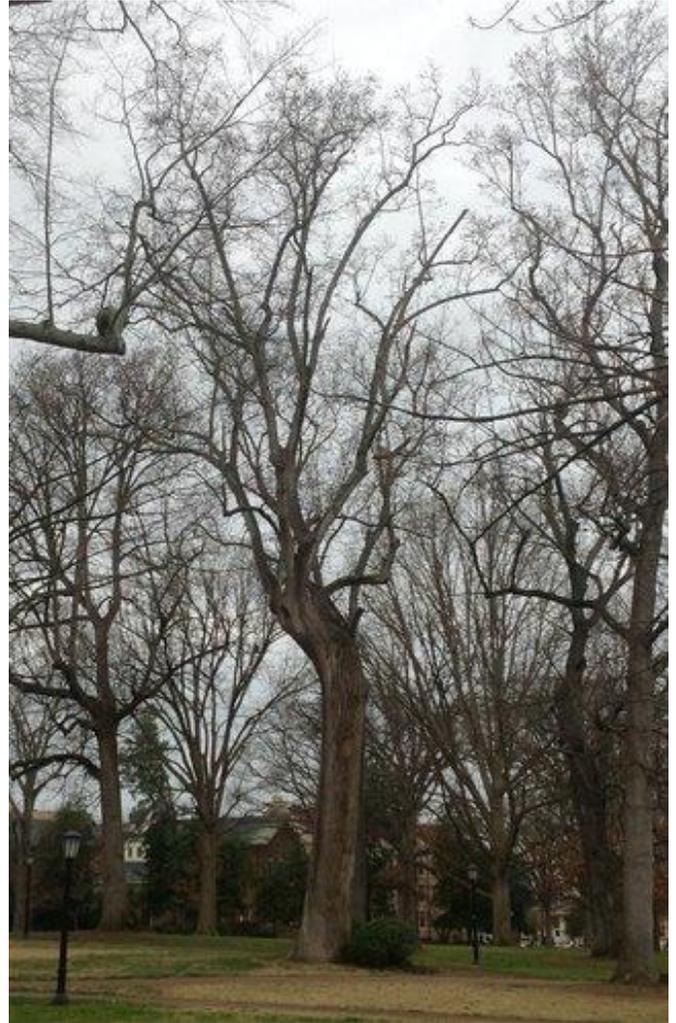


Not far from the post oak is a tree laden with mistletoe. I wonder how many of the 100's of people who walk under it everyday know what mistletoe is.



The Davie Poplar is a 300+ year old tulip poplar with its own Wikipedia page. Named for a revolutionary

war hero and the founding president of the university, the health of the Davie Poplar is said to be tied to the health of UNC. It has been damaged by lightning and hurricanes, but it is still healthy, if not hollow. It is cabled in a couple of spots and the hollow trunk was filled with concrete in 1996. I measured it to 99.3 feet.



The Davie Poplar

UNC campus is home to the Coker Arboretum, maintained by the NC Botanical Gardens. (<http://ncbg.unc.edu/Coker-arboretum/>). The arboretum contains hundreds of varieties of plants, trees, and flowers. One of the most prominent trees is a spruce pine known as Walter's Pine. It is listed in the arboretum map as 98 feet tall. I was pleasantly surprised that its height was not super exaggerated as I measured it to 95.7 feet.

On the northeast side of campus is Battle Park, a wooded area that has supposedly never been cut.

Will Blozan visited and wrote about some of the trees in battle park back in 2008:

http://www.nativetreesociety.org/fieldtrips/north_carolina/botanical/unc_chapel_hill_botanical_garden.htm

Later that same year John Eicholz also visited Battle Park and spent enough time exploring there to establish a Rucker index for the campus:

http://www.nativetreesociety.org/fieldtrips/north_carolina/north_carolina_trip_april_2008.htm

While hiking along Battle Creek I remeasured the Monarch of the Forest to 121.4 feet. John got the exact same measurement in 2008. I also remeasured a sweet gum near the gravel parking lot behind Forest Theatre that he noted in his post. He measured it to 122.7 in 2008 and I measured it to 122.9.



Feet of the Monarch



Crown of the Monarch

Here are some other trees I measured along Battle Creek

Tulip poplar

113.9

118.6

123.3

127.6

Red oak

112.4

White oak

101.8

Patrick Brandt

[Calvary Episcopal Church, Fletcher, NC](#)

by **bbeduhn** » Mon Jan 14, 2013 5:22 pm

I came across a couple of James Parton's posts about this church and cemetery. His reports can be found at

<http://www.nativetreesociety.org/fieldt...church.htm>

<http://www.nativetreesociety.org/fieldt...trees.htm>

James had all of the thin leaved oaks as willow oaks. I thought some were laurel but am not certain of this.

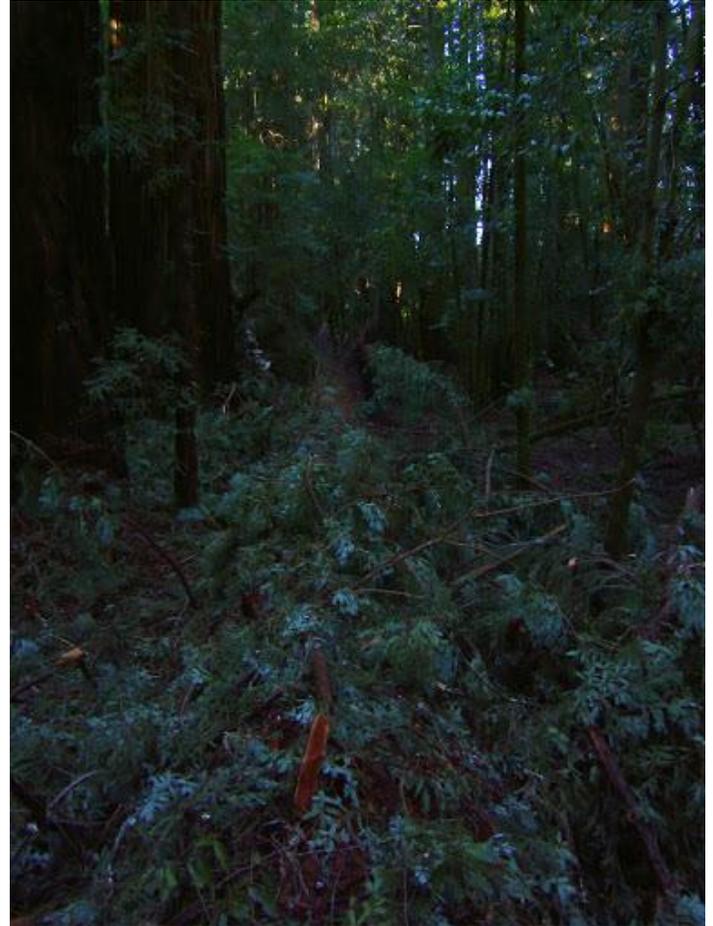
Gingko biloba 72.0' 73.1' 81.0' 80.9' 11'6" cbh
double trunked but fused well above breast height
Metasequoia glypt. 106.8' 9'5" cbh
hemlock 101.9' 11'9" cbh
beech 12'6" cbh didn't look like
American beech
white oak 14'3" cbh
American holly 62.3' 63.5'
Laurel oak 81.4' 14'10" cbh 99.1' spread
Laurel oak 111.1' 16'1" cbh 86.8' spread
Willow oak 87.5' 17'7" cbh 104.6' spread
same as the fat one in James' picture. Double trunked

Brian Beduhn

[Fallen Redwood Giant/Albino/Lichen, CA](#)

▣ by **Mark Collins** » Mon Jan 14, 2013 12:35 am

I took a hike today in a Redwood Grove in Northern California. It was frigid in the forest today. As my hike was coming to an end, I wanted to inspect an albino that I found last year. As I walked closer to the location, I noticed (who wouldn't!) a very recent, fallen redwood giant. My first thought was that the albino may have been smashed in the fall. As fate would have it, the albino survived the crash by just a few feet.



Here are some pictures of various lichen that were lying around after the detonation.

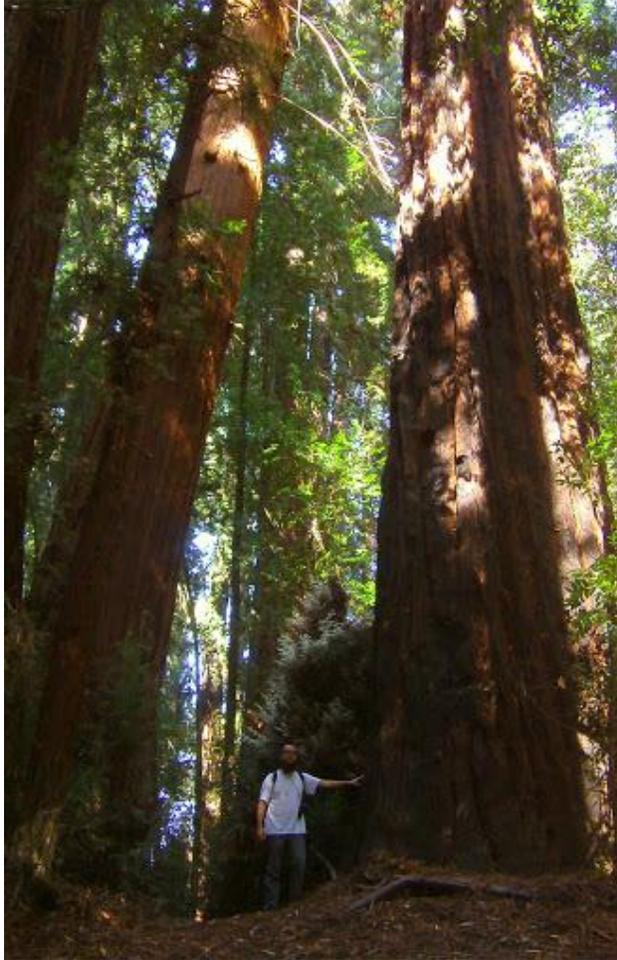




The next three photos were taken from a piece of wood that may have been near the top. The wood had holes in it (not pictured), perhaps from a woodpecker?



Below is a photo I took back in October 2012 from the opposite side. The now fallen giant is leaning on the left hand side of the photo, living it's final days as a standing entity.



Mark Collins

[Re: Fallen Redwood Giant/Albino/Lichen, CA](#)

by **Mark Collins** » Mon Jan 14, 2013 9:40 pm

Johnny D, it was a close call. In the second picture, you can just barely make out some white branches from the albino to the left of the base of the fallen redwood, just a few feet away.

Eliah, I agree, especially after a fresh fall. I wish I had more time to sort through the debris but I was running out of daylight. Below is a picture of the piece of wood with holes in it that was on the ground near the top of the debris field. It seemed more "rock like" than wood.



[Keep Kauri Standing, NZ](#)

by **edfrank** » Fri Jan 11, 2013 11:26 pm

Sean Freeman from Veteran Tree Group Australia (VTGA) sent a message to us via our Facebook Page. He reports that a cousin of his lives in Titirangi (Auckland West)

Melanie is very active in community groups and local politics and is the assistant to a local Labour MP Phil Twyford. She has managed to persuade the MP to undertake six days of walking along the 'Hilary Trail' in the Waitakere Ranges NP where the native Kauri forests are threatened by an exotic Phytophthora.

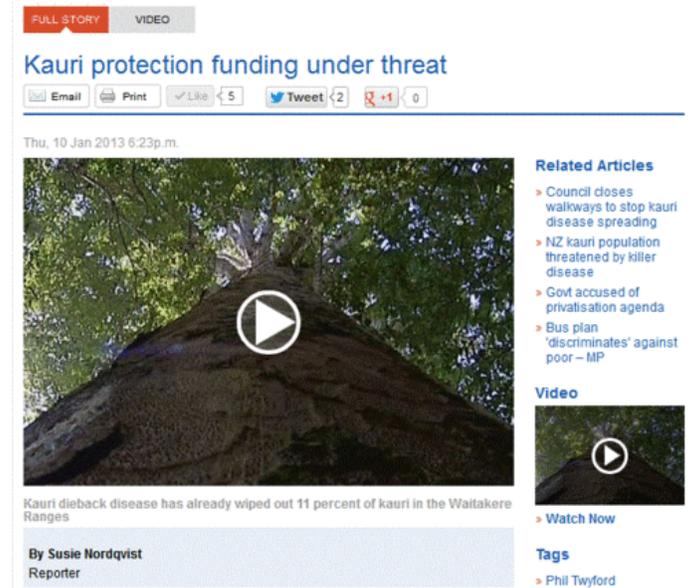
<http://www.kauridieback.co.nz/home/news-events/2013/1/11/tv3-news-highlights-potential-funding-issues.aspx>

During the walk which is intended to raise the profile of the government wind back of funding for tree protection and disease control amongst other media events Phil will be blogging, I would very much like for other relevant networks (like NTS) to carry his posts.

Here a couple of links to get everyone started:



<http://www.kauridieback.co.nz>



<http://www.3news.co.nz/Kauri-protection-funding-under-threat/tabid/1160/articleID/282631/Default.aspx>

Does Tane Mahuta need to keel over and die?

Posted by Phil Twyford on January 14th, 2013

<http://blog.labour.org.nz/>
<http://blog.labour.org.nz/2013/01/14/does-tane-mahuta-need-to-keel-over-and-die/>

What we don't know

Posted by Phil Twyford on January 14th, 2013

<http://blog.labour.org.nz/2013/01/14/what-we-dont-know/>

Scrub, spray and walk away

Posted by Phil Twyford on January 16th, 2013

<http://blog.labour.org.nz/2013/01/16/scrub-spray-and-walk-away/>

5 cool facts about kauri

Posted by Phil Twyford on January 16th, 2013

<http://blog.labour.org.nz/2013/01/16/5-cool-facts-about-kauri/>

[Clinometer App for iPhone](#)

by **Don** » Tue Jan 15, 2013 4:29 pm

I have a partial solution to clinometer error associated with Suunto, Brunton and other mechanically-based clinometers.

It's an app for iPhones, called Clinometer. It utilizes the multiple accelerometers that have a variety of uses by the iPhone. It essentially detects movement, and in the case of this app, has two functions.

One, it serves as a concentric spirit level (aka 'bulls eye' level), when held a horizontal position (flat on a table or other surface). Useful for carpenters, RV folks wanting a level rig, etc.

Two, and more to the point, when held on edge, the clinometer function is displayed. Controls for display color, scale (percent, degrees), a screen touch rotational lock, and an 'electronic vernier' for more precise interpretation of angle has recently been added. As well, a voice calling out angle can be selected, for later recording.

Instructions also include several ways to calibrate the clinometer. Once calibrated, quite accurate readings can be obtained.

As a result of my most recent contact with the programmer

(<http://www.plaincode.com/products/clinometer>), the next update will include the option of using the iPhones volume control buttons for locking the rotation, which allows simultaneous viewing and locking of rotation.

I used the word "partial" in the initial sentence, as a targeting mechanism needs to be devised. My own solution (in progress) is to attach a small pen-sized telescope (4 power), to better identify the specific target.

In summary, once an appropriate targeting mechanism is attached, this "Clinometer" iPhone attachment promises to elevate the accuracy of vertical angle measurement to a new high. The app is VERY sensitive to vertical angular movement.

Don Bertollette - President/Moderator, WNTS BBS

[Re: Clinometer App for iPhone](#)

by **dbhguru** » Wed Jan 16, 2013 9:00 am

Don, Wow! Thanks for the posting and all the good work. I have an app called TiltMeter, but now I'm going to get Clinometer. That will give me a number of clinometers/tilt sensors to play with and test. When I'm out in the field, I like to get readings from multiple instruments on important trees, but I never imagined an iPhone might turn out to be my most reliable instrument for vertical angles.

Robert T. Leverett

[Re: Clinometer App for iPhone](#)

by **pbrandt** » Wed Jan 16, 2013 9:39 am

Thanks Don! I downloaded the free clinometer app for the iPad. It does appear to be equally accurate to my suunto clinometer, but has no easy way to sight to the target. Attaching a 4x scope as you described is a good workaround. I'm sure someone will come up with a clever way to use it. Thanks

Patrick Brandt

[Re: Clinometer App for iPhone](#)

by **edfrank** » Wed Jan 16, 2013 2:31 pm

Don, You are talking about the sensitivity of the iPhone and app to tilting. There is still the problem of the sighting of your iPhone. It is entirely dependent on an external sight you plan to attach to the phone. If the telescope is off by 1/2 degree then your reading will be off by half of a degree no matter how sensitive the instrument might be. It is exactly the same problem as exists with the weighted wheel in a conventional clinometer. You will still need to test the calibration of the instrument and correct if needed for any misalignment between the iPhone and the telescope. Perhaps I am misunderstanding, but I

don't see how the mechanics could be any different than what I suggest. If the telescope is removable, as would seem to be the case, the question is whether or not the alignment is exactly the same each time it is attached or if it varies by some fraction of a degree in a random direction each time it is removed and attached.

Edward Frank

[Re: Clinometer App for iPhone](#)

by **Don** » Wed Jan 16, 2013 3:43 pm

Ed-

In the first case, I disagree with you, there is a world of difference between the mechanical-weight-balanced wheel used by Suunto and Brunton, and the accelerometer based iPhone Clinometer. I believe that the iPhone based system is much more sensitive to and capable of more accurate readings.

In the second case, I do agree with you, the sighting mechanism is critical to utilizing fully the more accurate accelerometer-based iPhone Clinometer.

Obviously, for continuing the multiple uses of the iPhone, a stable and precise yet removable sighting mechanism would be desired. My current direction is the use of a small pen-sized telescope (4x, which I have) and a mounting system (which I'm working with).

Other attempts (more permanent mods) include carefully filing in a groove (as in a gunsight) in a lexan-like protective case for the iPhone, along the face of the iPhone so that the line of sight passes through the axis (albeit a few millimeters off of a theoretical center of the center, which in a vertical plane makes no significant difference anyway) of the rotating mechanism.

...Ed, please indulge me by going to the Plaincode URL and give it a read, they've done a lot with it, and clearly are listening to their users. Honestly, I believe there is a LOT of potential for significantly improved vertical angle measurement.

Is it ready off-the-showroom-floor? No. Can we take advantage of this superior system? I have made headway (getting a superior rotational lock mechanism through contact with the Plaincode programmer), and with Bob and Patrick working with it, I'm optimistic!

It's biggest positive? IF one has an iPhone that provides one with enough utility to merit its purchase cost, the cost of the Clinometer app is VERY reasonable. It initially was free several years ago, though I haven't checked lately, I'll bet it's \$1.99. Is there a better deal out there? Patrick, can you weigh in on the cost?

Thanks!

Don Bertollette

[Re: Clinometer App for iPhone](#)

by **edfrank** » Wed Jan 16, 2013 4:03 pm

Don, If the sighting scope is misaligned the effect is exactly the same as if the weighted wheel is off balance. It will create an error of some amount in the same direction in all measurements. It is not that the reading is wrong - it is that your pointing is wrong.

So my problem is simply a mechanical one of making sure the telescope will align perfectly with the iPhone mechanism. If you reread my post that is all I have mentioned. It has nothing to do with the accuracy of the iPhone sensors at all.

Edward Frank

[Re: Clinometer App for iPhone](#)

by **pdbrandt** » Wed Jan 16, 2013 4:27 pm

Don,

The Clinometer app from Plaincode is free. It does look great on the full size ipad that I have.

Another obstacle to using it in place of a suunto or brunton clinometer is that you can not save the angle measurement with the click or tap of the screen once you zero in on the angle to the target. In other words you would have to mount it on a tripod, align it to the correct angle, and then read the measurement on the screen which is facing perpendicular from your point of view.

In your original post, you mention that the developer is planning to create the ability to lock the screen in future editions. Do you mean that you will be able to save the angle measurement with the tap of the screen?

[Re: Clinometer App for iPhone](#)

by **pdbrandt** » Wed Jan 16, 2013 10:48 pm

Hold the presses! A was looking more closely at the app and there is indeed a lock button that allows you to freeze the clinometer angle. Unfortunately, the button is TEENY and nearly impossible to tap precisely while sighting to a distant object. If the button were enlarged on the next version that would be awesome. Perhaps it could be set up such that the screen will lock if you touch and hold the screen anywhere for 1-2 seconds.

Patrick

[Re: Clinometer App for iPhone](#)

by **edfrank** » Wed Jan 16, 2013 11:16 pm

From the Plaincode website

Clinometer on iPhone / iPod Touch

*This clinometer * application is a (hopefully most accurate) slope finder tool on the iPhone. It can be applied on all edges of the iPhone/iPod touch (preferrably the ones without buttons) in every direction. It is designed to be as accurate as possible (normally in the range of ± 0.1 degrees, although this might depend on the device).*

The clinometer supports multiple color schemes (Black on White or White on Black and Night Color) and 2 precision setups. A fullscreen mode can be toggled by tapping the center of the screen, which prevents you from erroneous inputs while measuring.

The (free) update is already distributed which includes nicer graphics, two-way calibration, a percentage display, and a bubble mode when the iphone is on a flat surface.

<http://plaincode.com/products/clinometer/>

[Re: Clinometer App for iPhone](#)

by **pdbrandt** » Wed Jan 16, 2013 11:12 pm

I think Don is on to something here. I just bought the full version of the clinometer app for 1.99. By upgrading to the full version, the angle readout measures degrees to the tenth of a degree (instead of full degrees on the free version) and the app will speak to you to tell you what the angle is as you are measuring. You can define how long the angle has to be kept steady at what percentage of a degree before the angle is read. For example I have it set to read me the angle if I hold the clinometer steady within 0.3 degree for at least 2 seconds. If someone could create a case to reliably accommodate a sight and if someone who knows more about clinometer calibration can test the accuracy of the app, we could have ourselves a new highly accurate clinometer.

Patrick Brandt

[Re: Clinometer App for iPhone](#)

by **Don** » Thu Jan 17, 2013 2:21 am

Ed, Thanks for the pasting! I think the Plaincode folks are a little understated. They need Bob to do some comparative testing, give them some bragging rights!

Patrick-

Nice to have someone as enthusiastic as me...I've been in contact with one of the Plaincode guys, who in the last week informed me that the next update coming up will include the use of the iPhone's volume button for a locking mechanism...major improvement! Don't have to be looking at the screen to press the touch screen icon (yes, terribly small!).

The updated volume button cum rotational angle lock will be an excellent upgrade...positively locks the rotation, retains the readout until you free the lock/button, allowing time to record it in your notebook.

I suspect if we really wanted, we could see if Plaincode folks would code it so that we could utilize bluetooth technology/iCloud adjacency transfers, who knows?

One thing of interest to iPhone users is are two accessories I bought for the camera feature...the first was an physical attachment to the iPhone that allowed the iPhone to be mounted to any tripod. The second was an attaching device that permitted remote shooting of the camera. It's occurring to me now that both could be useful for the Clinometer App...

Bob-

I'll be of course very interested in any testing of the accuracy of the Clinometer App, although I know it would be some time before you might get to it. One of the interesting features (just read about it in Ed's paste above) is that you can configure it to orient the Clinometer (in calibrating it) to any edge of the iPhone. My preferred configuration is to have targeting mechanism aligned with the axis of the 'rotational angle, and on the back 'long' side (longer the targeting mechanism the more accurate). Even if it was something as simple as a thin soda straw or with 4x power scope. Held in the right hand, the display facing to the left, the lock/volume button under index finger (at near end, near face when

sighting).

I did look long and hard for a thin, lightweight macroscope with some manner of interior targeting lines, that could be attached. All I could find were approximately one inch diameter or so, and relative to the iPhone, too heavy.

Don Bertollette

[Re: Clinometer App for iPhone](#)

by **dbhguru** » Thu Jan 17, 2013 9:27 am

Don,

I'm really excited about your perfection of the iPhone's clinometer capabilities through that app. I meant to get it yesterday, but will follow through today. Can you tell us where you got those accessories?

I love it when we can make these kinds of forward leaps and to be able to do it so inexpensively and simply. So often advances in our measuring capabilities comes through very expensive equipment or bewilderingly complex software systems. You literally have to start a new career to deal with some of the software products out there in order to gain access to some very simple feature - maybe all you want. One reason why I'm presently sticking with Excel for this photographic analysis is that I can quickly arrive at an answer through a simple process and just about everyone has Excel. Lots of folks have iPhones, so this app is a natural. Thanks for taking the lead on it.

Robert T. Leverett

[Re: Max. height for northern whitecedar](#)

by **KoutaR** » Mon Jan 14, 2013 5:37 pm

So the ID of this tree remains obscured. Maybe I go sometimes to check the tree. Karlheinz and I try to meet in the record larch grove again and this claimed *Thuja occidentalis* is not very far from it. If I go there I will collect samples from the tree.

I have more questions about max. heights. The East Max. List gives following height records:

- *Picea glauca* 103.3 ft
- *Larix laricina* 78 ft
- *Populus tremuloides* 88 ft

However, these species grow taller in the north and in the west. What are the world records for these species?

Kouta Räsänen

[Re: Max. height for northern whitecedar](#)

by **Jess Riddle** » Tue Jan 15, 2013 1:28 pm

Hi Kouta, I've measured *Larix laricina* to 91.0' and *Populus tremuloides* to 97.9'. I also measured a plantation grown *Picea* that I think was *P. glauca* to 115.9'. Unfortunately, I had never seen *P. glauca* before, but the cones fit and *P. glauca* is used as a plantation species in the area. None of the sites those trees grew on appeared exceptionally productive, and I agree with you that those species likely grow much larger in other parts of their ranges.

Jess Riddle

[Re: Max. height for northern whitecedar](#)

by **KoutaR** » Wed Jan 16, 2013 12:19 pm

Jess, where are those trees located?

I almost reached Jess' values in Prince Albert National Park, Saskatchewan:

- *Picea glauca* 35 m = 115 ft
- *Populus tremuloides* 29 m = 95 ft
- *Larix laricina* 26 m = 85 ft

The spruce and the aspen grow side by side along Grey Owl Trail, close to the eastern shore of Kingsmere Lake, pictured below.



The larch grows in the northern wilderness of the park, outside trails.

Kouta Räsänen

Sine Versus Tangent Comparison

by dbhguru » Wed Jan 16, 2013 2:06 pm

NTS, Yesterday, Monica and I stayed in a cabin in MTSF. I wasn't feeling well, so we took only short hikes and I concentrated on a comparative test of sine versus tangent in the vicinity of the cabin. I wanted to draw attention to the cardinal considerations of a comparison. I realize that we've done this many times before, but the explanations we give for the comparisons are not always clear.

The attached Excel spreadsheet (done originally for my friend Don Bertollette) shows the results of measuring a white birch and a northern red oak. In

each case a measurement location was first chosen with visibility to top and base. Then angles and distances were taken to include the level distances to the trunks. I also used the 3-point tree height routine built into the TP200 on each tree. Since from the chosen measurement locations, crown and base angles were the same for both methods, differences in heights could not be attributed to differences in angle measure. Keeping this in mind, in the case of the white birch, the tangent method gave a height of 15.2 feet more than the sine. For the oak, the tangent calculation exceeded that of the sine by 9.3 feet. We would all agree that these differences are not insignificant, but can we explain them? The attached spreadsheet does that, and I bet all the measuring faithful know the answer without even glancing at the spreadsheet. The differences in heights are attributable to the difference in the baseline lengths for the crown points.

Sine and Tangent Methods: (Traditional way of applying tangent method)												
Tree	Slope		Sine		Sine		Tan		Tan		Abs sin - Tan	
	Dist Top	Angle Top	Hgt Top	Slope Dist Bottom	Angle Botto m	Hgt Botto m	Total Sine Hgt	Dist Trunk Top	Hgt Top	Hgt Botto m		Total Tan Hgt
birch	109	38.7	68.151	104.25	-0.3	-0.546	68.697	104	83.32	-0.545	83.8643	15.16696
oak	112	53.4	89.916	74	-5	-6.45	96.365	73.718	99.262	-6.45	105.711	9.3463629

Correct way of applying tangent method with comparison of results to sine method												
Tree	Horiz		Tan		Tan		Tan		Tan		Abs sin - Tan	
	Dist Top	Angle Top	Hgt Top	Horiz Dist Bottom	Angle Botto m	Hgt Botto m	Total Sine Hgt	Dist Trunk Top	Hgt Top	Hgt Botto m		Total Tan Hgt
birch	85.067	38.7	68.151	104.2486	-0.3	-0.546	68.697	104	83.32	-0.545	83.8643	0
oak	66.777	53.4	89.916	73.71841	-5	-6.45	96.365	73.718	99.262	-6.45	105.711	0

Notes:

- All measurements made with a TruPulse 200
- In the first tangent-based calculation, the baseline for both top and bottom is to a point level
- In the second tangent calculation, the correct baselines for the top and bottom of the tree are
- In the first tangent calculation, the difference between sine and tangent is 15.2 ft for the birch
- In the second tangent calculation, the difference between the sine and tangent is 0 feet for b
- This example illustrates the fact that measuring tree height is a two baseline problem.
- In the first example, forcing the one baseline solution results in the errors of 15.2 and 9.3 feet
- By changing the orientation to trunk, the tangent-based error can be reduced but never entire
- The problem described is not a function of who did the measuring or of equipment, but the me
- If the correct baselines are used, sine and tangent methods yield the same results.
- The problem is not resolved by taking different measurements of the target and averaging th
- Actual height of oak is 4.5 feet higher for both determinations. Measurements were to a mar
- feet above mid-slope.
- In the images, the yellow arrows point to the tops of the target trees. The top two photos are
- The bottom one is of the crown of the oak.
- The first birch image clearly shows a crown to base offset. However, it is not clear what my c
- relative to a vertical plane through the top and base. I'm obviously not oriented 90 degrees
- between the level distance to the top versus the bottom is 18.93 feet. $\text{Tan}(38.7) \times 18.933 = 15.$
- which is the difference between height above eye level for the tangent versus sine calculati

In the case of the white birch, the eye to crown-point hypotenuse distance was 109 feet at an angle of 38.7 degrees. This means that the horizontal distance to the crown point was 85.07 feet. How does this compare with the level trunk distance used in the tangent method? It was 104 feet. Now $104 - 85.07 = 18.933$ and the tangent of 38.7 degrees $\times 18.933$ feet = 15.2 feet. What was the differences in height between the two methods? Oh yes, it was 15.2 feet. We have accounted for the difference in results for the two methods. A similar explanation applies to the red oak.

The problem is that the level line from eye to trunk, up to the crown point, and back to the eye does not form a right triangle. So the triangle construction from the tangent method is flawed because the top is not vertically over the spot on the trunk corresponding to the end of the level trunk baseline. As a consequence, the tangent calculation computes to a projected top, as opposed to the actual top. We know that this scenario plays out over and over, and is epidemic in champion tree competitions. As a consequence, in using a baseline to the trunk of the tree as a surrogate for the true baseline, tangent measurers are sentenced to perpetual error. Why is this not obvious to qualified tree measurers such as mensurationists? Well, I think that originally it was and that they attempted to find ways to minimize baseline errors, such as orienting themselves 90 degrees to the vertical plane passing through the base and crown point. But this is a laborious, and itself, an error-prone process except for straight-trunked, leaning conifers.

This brings me to a key point. The NTS approach to tree measuring is to identify and evaluate every conceivable source of measurement error. We consider equipment capability, calibration requirements, random errors from hand jiggling the instruments, and the all important tree geometry. We can identify every one of these sources and evaluate their effects, virtually down to the inch. In contrast,

our competition, if we choose to see ourselves in competition, is often sublimely unaware that sources of error even exist, except perhaps misreading a clinometer or tape or having a faulty instrument.



The above said, a valid consideration in discussions with others are the uses to which the data of others are put. For forestry considerations, I readily concede that tape and clinometer measurements are adequate for relatively young plantation conifers on fairly level ground. And a lot of orchard hardwoods are apically dominant as young trees, so that tape and clinometer can work there also.

We need to remain sensitive to where a measuring technique can be made to work for whatever the intended purposes. To do that, we need to measure trees by all the methods and constantly reinforce what works and where and how much effort must go into a technique under the range of conditions to get an acceptable result.

 [DonBertolette-1.xlsx](#)

Robert T. Leverett

[Re: Photo Measurements](#)

by **edfrank** » Tue Jan 15, 2013 12:56 am

Bob, I realize that people in all eras consisted of a wide variety of body sizes from tall to short, from long arms to short arms. Have you found some table that might list average sizes of people at different times here in the US?

I have searched on the internet and it is a morass of different changes over time and variations between different ethnic groups within the US. I remember one old document I came across involving lumbering in PA or NY listed the workers as Whites, Indians, and Polocks. Based upon different ethnic groups and living standards it might be expected that these different groups in this one location might have different proportions.

This pretty much summarized what I have found:

According to United States government data, the average height for U.S. adult males is 5 feet 9.9 inches, with the average female measuring 5 feet 4.3 inches. The average height of humans varies greatly across the world and depends on a number of factors including genetics and nutrition. It is difficult to come up with an exact worldwide average height because of variability in data collection between nations. Average human height has also fluctuated significantly throughout history.

Read more: The Average Height of Humans | eHow.com
http://www.ehow.com/about_5462915_avera...z2116aFdZ9

Average height has oscillated throughout human history. The average height of a large population at a given moment in history often says a lot about the living conditions at that time. An Ohio State University study determined that European men during the 17th century averaged 5 feet 5 inches tall, whereas today they are a few inches taller. He attributes this to the abnormally cold weather and widespread political crisis in Europe during that century. The study also found that the Cheyenne

people of North America were some of the tallest human beings ever to inhabit earth. He attributes this to the high protein, buffalo based diet of the Cheyenne.

Read more: The Average Height of Humans | eHow.com
http://www.ehow.com/about_5462915_avera...z2117AYoMa

Here are some other links that have some useful information as opposed to the many that add little:

http://www.roymech.co.uk/Useful_Tables/Human/Human_sizes.html

http://www.macleans.ca/science/technology/article.jsp?content=20050404_103140_103140

<http://www.quora.com/Human-Biology/Has-the-average-size-of-human-beings-changed-over-time>

<http://eh.net/encyclopedia/article/cuff.anthropometrics>

The first link provides a table of anthropometric data. Unfortunately there are some glitches in rows 32 and 33, I would assume that in row 32, span (arm span) they simply left the 1 off from in front of 810 and the number should be 1810. Some of the numbers in row 33 are just wrong and I have no guesses as to what they might be.

Edward Frank

[Re: Photo Measurements](#)

by **Don** » Wed Jan 16, 2013 4:16 pm

Ed/Bob-
Good comments! It's always a good idea to have a way of relating to the subject in such photos, i.e., an object of known dimension, and in a stochastic way you've worked out a solution for unknown object dimensions.

Another variability is within individual differences...most people's armspan is closely related to their height...since there are always exceptions, one occurs to me, in the guise of a champion boxer familiar to most of us of advanced wisdom and age (g). Muhammed Ali (aka Cassius Clay) was deemed a more serious opponent because of his super-normal armspan (his height was 75", his reach 80"). I suppose that equal extremes in the other direction are likely.

Another comment that hasn't been mentioned (maybe for good reason?) has been the variability of scale in a photo due to the spherical nature of a lens and the flat nature of a photo. While in the center portion of a photo, this is a small distortion, but when the subject's proportion of the photo's extent is large, the distortion may be significant.

Otherwise, there is obvious merit to such photo measurement efforts.

Don Bertollette

Re: Photo Measurements

by **edfrank** » Wed Jan 16, 2013 4:35 pm

Don, There are many layers of potential distortions in making measurements from old photos. So to be used we need to try to figure out what ranges of human dimensions we are dealing with in each photo - and in most cases simply use an average with big error bars. Distortion from the mechanics of the photograph and from things not being in the same plane also will add potential error to these estimates.

I wonder if these errors will add the the error bars significantly or simply be subsumed by the human size question to the point they are minimal? They would be different on different photos depending on the distance to the camera, focal length, etc. So nothing was avoided "for good reason" it simply had not been considered yet. I don't think we will ever be

able to get the values very close, but should be able to get useful approximations on historical photos, and better results where we can actually measure the subject and have photo data.

Edward Frank

Re: Photo Measurements

by **dbhguru** » Wed Jan 16, 2013 6:27 pm

NTS, I continue chipping away at simple photo measurements. The following photo was from my iPhone camera. As you can see, shooting straight on, the target is measured photographically as being 11.4 inches in width. Its actual width is 11.25 inches.

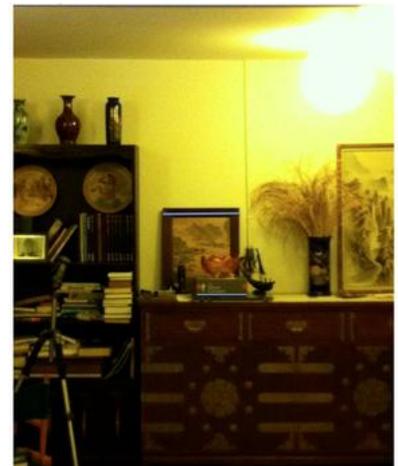
Photo Measurements

R _a (Distance)	R _r (Act Ref)	R _e (Excel Size)
22.913	1.5	1.43
T _a (Distance)	W (Mean Target)	T _r (Excel Size)
21.629	11.4	0.96
Actual mean	11.25	
Diff in %	0.35	

$$W = \left(\frac{R_a}{R_r} \right) \left(\frac{T_r}{R_e} \right) T_a$$

$$W = \left(\frac{1.5}{1.43} \right) \left(\frac{21.629}{0.96} \right) 11.25$$

W = measured width of target object
 R_a = actual diameter, reference object
 R_r = Excel size, reference object
 T_a = distance, target object
 R_e = distance, reference object
 T_r = Excel size, target object



Robert T. Leverett

[YouTube, "The 40 Greatest Trees" Any omissions?](#)

by **JohnnyDJersey** » Wed Jan 16, 2013 3:08 pm

I decided to make a video of my top 40 greatest trees alive today. What makes them great? Well a mixture of things. Size, reputation, fame, age, history... As with any list or countdown there are bound to be thoes left out. Check out my video and tell me, what you would include thats not there or what should be higher? None of these photos are my own, its just an assembly of others work. In fact some were taken by Native Tree Society members, so thanks for the inspiration guys. Some facts and measurments are "internet estimations".



<http://www.youtube.com/watch?v=BhFXkjM0bXM>

[Large Tuliptree near Charlottesville, VA](#)

by **Andrew Gray**» Wed Jan 16, 2013 3:03 pm

Hello ents

I recently came across a large tulip poplar , the trunk measured 21 feet 6 inches in girth, the trunk splits in to two stems at 7 feet or so, I could not gauge the height but I would say it is well over 100 feet, the tree is quite high up on a ridge (2'400 feet or so) it is in a public area but there are no trails to it or signs of

people visiting it except for surveyors marks. I wondered if a tree of this size is worthy of being registered. The tree is located close to Charlottesville Va

It looked like a single tree to my untrained eye. there is a 16 feet six inch poplar close to this tree (single stem) and a couple of other large trees, they follow an old fence line. I have attached a couple of photos that may be of some help, my fiance is in one of the pictures to give perspective.

Also, I would be happy to take any interested parties to the tree if need be. Please let me know if you are interested in this tree.





Sincerely,
Andrew Gray

[Re: Large Tuliptree near Charlottesville, VA](#)

by **dbhguru** » Wed Jan 16, 2013 3:35 pm

Ed, Andrew, Monica and I plan to be in Virginia from the 20th through the 24th. I could possibly check it out. From the photo, I'd say that at the least it is a coppice. But I'd vote for two trees. Nonetheless, I'd like to see and measure it.

Robert T. Leverett

[Portraits of Tree Parts](#)

by **mdvaden** » Wed Jan 16, 2013 8:25 pm

So ... I'm retaking Evergreen ID at the college here for CEUs pertaining to my ISA arborist certification. First time in 1982 ... and it was my favorite horticulture class over the years. Our term project includes a document file notebook. I decided to try photographing a few of the tree and plant parts in similar fashion to how I've approached portraiture of people the past year. Here are a few to start ..

Blue Atlas Cedar twig, Callistemon twig, Incense Cedar cone





M. D. Vaden of Oregon

Tons of Redwood stuff ... Use the bottom menu at: <http://www.mdvaden.com>

Tree Foam

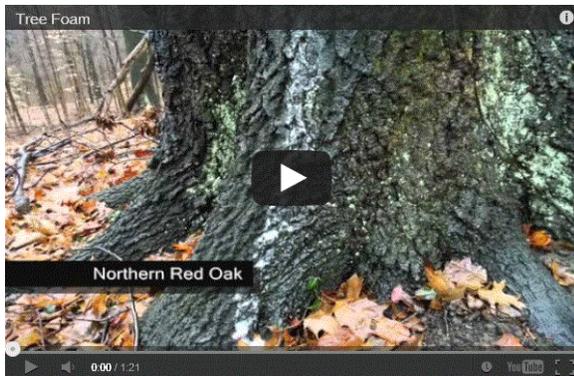
by pitsandmounds » Wed Jan 16, 2013 10:58 pm

Lowly tree foam, Characterless? Dull? Insignificant? Modest? Unremarkable?

I suppose any natural phenomena is worthy of study and that it's all in the eye of the beholder. And since rain isn't conducive to measuring trees, why not make the most of it?

Apparently, dissolved compounds are reducing the surface tension of the water and when mixed with air, are causing bubbles. Are those compounds already in the rainwater, on the tree, or both? Not sure.

Here is a video paired with a fitting Thoreau quote . .



<http://www.youtube.com/watch?v=euenmTtHbaA>



Matt

Re: Tree Foam

by pitsandmounds » Thu Jan 17, 2013 8:38 pm

This makes the most sense . . .

This theory was expounded upon by Steve Pettis, who said:

“My guess is that the foam is caused by the formation of a crude soap on the bark. During drought there is an accumulation of salts, acids and other particles from the air that coat the bark surface (soap is essentially salts and acids). When it rains, these mix with the water and go into solution. The froth (foam) is from the agitation of the mixture when it encounters a barrier (bark plates) during its flow toward the ground.”

<http://www.walterreeves.com/gardening-q...s-on-bark/>